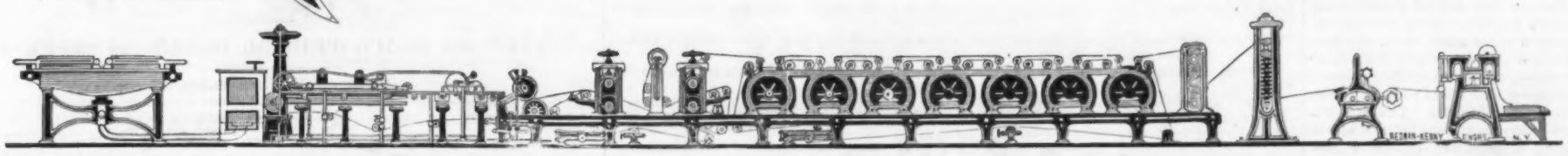
The Paper Trade Journal.



"The Consumption of Paper is the Measure of a People's Culture."

VOLUME IX.—NO. 23. NEW YORK, JUNE 5, 1880. WHOLE NUMBER 31[illegible]

Trade Topics.

Preparing Wood for Paper Pulp.

In this process (lately patented) the wood is cut and prepared in sticks or pieces of suitable size, as usual in processes for making wood pulp, and these pieces are then packed or piled in a close tank or compartment of any suitable description for holding the wood. The particular construction of the tank is immaterial, as it is only necessary that it should be water-tight, with the exception of inlet and outlet openings for the admission and exit of water. In the top of the tank, or in some convenient location over the wood, a perforated plate is arranged, above which water is let into the tank, and at the bottom of the tank is an opening for the outflow of the water. The perforated plate may form the bottom of a water pan, or any other construction may be adopted which will serve to separate the water by passing it through fine openings, so that it is sprinkled upon the wood below. The water employed for this purpose must be hot, preferably of about boiling temperature, or somewhat below. The water may be heated by steam or any other means suitable for the purpose.

In operation the hot water is permitted to flow freely into the tank upon the perforated plate, through which it passes and falls upon the wood below in a fine sprinkle or spray, and passes down through the body of wood, completely saturating it, softening the fibre and washing therefrom all resinous substances, gums, acids and other matter which is injurious in the manufacture of paper pulp from wood. The water, as it reaches the bottom of the tank, is permitted to flow out freely through the exit opening, carrying off with it continuously the resins, &c. In this operation all the deleterious matter is carried off as fast as dissolved, or in any other way taken up by the water, and is freed at once from contact with the wood, thereby thoroughly cleansing the wood, and without injuring the latter by contact with the dirty water. The water flows in and out of the tank without any pressure, and it is a special object to keep a continual supply of fresh, clean water entering and passing through the wood. The passing of water through a sprinkling device thoroughly distributes it over the wood, so that it will become thoroughly saturated. The hot water enters the upper part of the tank and passes through the wood by the natural operation of gravity, requiring no extra devices or mechanism for keeping up a circulation. The flow of water is continued until the wood is thoroughly softened and washed and ready for the grinding machine, by which it is reduced to pulp.

The process is applicable to woods of all kinds, and will, it is said, efficiently cleanse and soften them preparatory to grinding. Soft wood, such as pine and poplar, which are more frequently used in the manufacture of paper, are probably more readily acted upon by the process, however, than the hard woods. (227,646.)

Manufacture of Paper Pulp from Straw, &c.

This is an improvement in the manufacture of paper pulp from straw and other like stalky or reedy fibrous materials. Heretofore the processes employed in converting such fibrous materials into paper pulp have consisted of what may be termed "wet processes"—that is to say, the materials have been subjected to the action of various solutions containing chemical agents, or to the action of water, boiling or otherwise, or treated under various degrees of steam pressure. These wet processes, owing to the refractory nature of the silicious glaze or coating common to straw and like stalky or reedy fibrous materials, are converted at the expense of much time and strong chemical solutions applied to the fibre under a high degree of steam pressure. This severe treatment is demanded by the natural resistance of the silicious glaze to the disintegrating action of heated chemical solutions, and is practiced, also, for the purpose of freeing the materials from the glaze and from the coloring properties.

The object of this invention is to provide an improved process for so effectually destroying the silicious glaze on such fibrous materials, previous to submitting them to the action of any of the well known wet processes, as to render the disintegration of the fibres much less difficult and expensive, and to destroy the coloring properties of the silicious glaze previous to treating the materials in disintegrating solutions. In carrying this invention into effect the straw or fibrous material is first submitted to the action of dry heat by baking in any convenient apparatus or in an oven, one of the most effective ways being to inclose it in suitable metallic cylinders, which may be made to rotate in an oven or furnace, so as to cause the cylinders to be evenly heated over their whole surface and also to cause the fibrous material contained therein to be properly agitated and the contents to be brought in contact with or near to the interior surface of the cylinder, so that they may be uniformly baked.

The degree of heat found to produce the best effect for destroying the silicious glaze or coating on the materials is between 450° and 500° Fahrenheit, and an exposure of the materials to the action of dry heat during the space of about fifteen minutes serves to so far destroy the glaze or coating that the material can be easily reduced to pulp by subsequently boiling it in a weak solution of caustic lye—say of about 7° strength—for about ten minutes, and the disintegration of the fibres can be fully accomplished by afterward passing the boiled material between rollers or similar crushing appliances. The pulp so produced may be washed and bleached by any of the well known means employed for that purpose.

When an unusually strong-fibred pulp is required the materials may be exposed to a baking heat not exceeding 450° Fahrenheit, when, by boiling them in a dye of the above named strength for about one hour, disintegration may be accomplished by crushing, as before mentioned. It is said to be preferable to cut the material into short lengths to prepare it for roasting or baking, as in that form the heat acts more uniformly upon it, and it is thus reduced to the most convenient state for boiling and subsequent treatment. (227,676.)

Action of Water on Reaction Wheels.

The characteristic property of fluids is that they transmit a pressure applied to them, in all directions. Agreeably to this law of fluids, the water in the reaction wheel will press with a force on the whole of the inner surface equally, which force of pressure will be equal to the weight of a collection of water and the perpendicular height of the head. If the issues of the wheel be closed it will not tend to move—the principle of equal pressure will hold it *in equilibrio*; but open the issues, and a pressure is removed from that side of the wheel equal to the weight of a column of water the size of the apertures and height of the head, and the preponderance pressure will cause the wheel to move in a contrary direction with a force equal to that removal. The pressure that is removed is expended in giving velocity to the effluent water; but it does not necessarily follow that the efflux of the water gives to the wheel a tendency to move in a contrary direction; it merely proves that, as the wheel was at rest before the removal of the obstruction of the issues, there is a force taken from the wheel in that direction equal to the force that overcomes the inertia of the effluent water, and, consequently, the preponderant force will be equal to the force removed. It is not the pressure removed that moves the wheel—it held it *in equilibrio* or from moving while it remained; but when it is removed the opposite pressure preponderates and moves the wheel with a force precisely similar to that removed.

This preponderant force of pressure will act invariably independent of the velocity of the wheel, and were it not for an antagonistic force would impel it on with accelerated motion until overcome by friction. The antagonistic force is the inertia of the water entering the wheel, the intensity of which is directly as the velocity of the wheel. And when the velocity of the wheel equals that of the effluent water, the antagonistic force will equal the proponderant force that impels the wheel.

The quantity of water entering the wheel will equal that issuing from it, and the force necessary to give it a velocity equal to that of the effluent water will necessarily equal the force that gives motion to the wheel; therefore, if the wheel moves with a velocity equal to that of the water issuing from it, an equilibrium will subsist between these two forces and the effect will be nothing. But if the wheel move with a velocity less than that of the effluent water, then the force necessary to overcome the inertia of the water entering the wheel and to give it an equal velocity will equal such part of the pressure that impels the wheel as is indicated by subtracting the velocity of the wheel from the velocity of the effluent water; and the effect will be equal to the preponderant force less the antagonistic force multiplied by the velocity of the wheel, or, as the velocity of the water less the velocity of the wheel multiplied by the velocity of the wheel—the power being the velocity of the water multiplied by the velocity of water.

It can be proved that, to produce a maximum effect, the wheel should move just one-half as fast as the water issues from the wheel, when co-efficient of effect will be 25.

The velocity with which water issues from under any head is as the square root of the height and will be something more than 7-10 of that due the whole head (.7 is near enough the truth, it being the square root of .49 instead of .50).

If a reaction water-wheel, moving with a velocity equal .7 (that due the whole height of head being 1), have the water let on it in the direction of its motion through a chute or chutes equal in size to that of all the issues of the wheel, then the velocity of the water and wheel will each be equal .7, and the pressure of the water on the wheel equal to .5 of the whole head; the water will act on the wheel precisely as it would

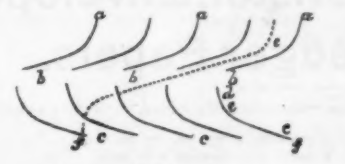


FIG. 1.

if both were at rest; and, therefore, it will issue out of the wheel with a velocity due one-half the whole head, *i. e.*, .7, as relates to the wheel; but as the wheel is moving with the same velocity in a contrary direction, it leaves the wheel without actual velocity.

As the wheel moves with a velocity equal that of the effluent water, and with a force equal to

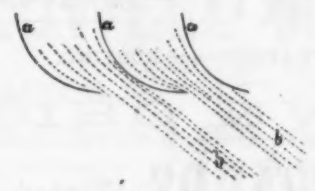


FIG. 2.

the weight of one-half the whole column of water, the co-efficient of effect is 50, or double that which would have been had it been let on to it without a motion in the direction of the wheel —a common reaction wheel.

If water issue out an aperture pierced through a thin plate, the discharge will only equal

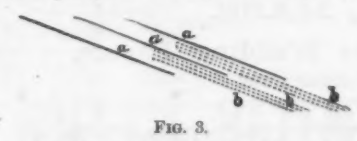


FIG. 3.

about 62 of that assigned by theory; and if a tube of equal size throughout, whose length is twice that of its diameter, be applied to the aperture, the discharge will be about .80; but if a cone-shaped tube, approaching in form the contraction of the vanes, be placed inside of the

FIG. 4.

vessel the discharge will be very nearly that assigned by theory.

The velocity of water is impeded by short or sudden turns in its direction. Water cannot leave a reaction wheel at a tangent or in a line with the plane of volition; the effect will be diminished by a deviation from this line, as the cosine of the angle of deviation is to the radius. If water pass through the spaces between vanes to change its direction, the thinner and the less curved those vanes are the greater the change in its direction.

In Fig. 1 *a a a* are the permanent vanes or chutes; *b b b* is the space between the chutes and wheel; *c c c* are the bottoms of the vanes of the wheel; *d* is a cusp of a cycloid; *d e* is a cycloid; *c f* is a tangent to the vertex of the cycloid; *d c f* is a bucket or vane of the wheel. If water pass through the vanes, Fig. 2, its direction on leaving them will be that of the dotted lines *b b*; but if it pass through *a a a*, as at Fig. 3, its direction will be that of *b b b*, a much greater change; although the volume of water discharged will be as large, yet the quantity discharged will not be as great at Fig. 3 as at Fig. 2, in consequence of the contraction of the vane as above. Let the vanes be formed as at Fig. 4, the top part, *a b*, cycloidal, and the bottom part, *b c*, plain tangential to the vertex of the cycloid, and the greatest possible quantity of water with the greatest possible change of direction and velocity will issue. To construct a reaction water-wheel in accordance with all the principles, form and situate the vanes and wheel, as in diagram, Fig. 1. If the water stand within its full height of head above the chutes *a a a*, Fig. 1, it will pass through them, into the space between them and the wheel, *b b b*, and be given a direction of that of the wheel, with a velocity of .7, and will issue out between the vanes of the wheel at *c c c*, in a contrary direction, with equal velocity as relates to the wheel, but, as the wheel is moving with the same velocity, without actual velocity. The water in this case will move, on entering the wheel, as near in the direction of the plane of its rotation as possible, and will leave it as near in an opposite one. Its velocity will be the greatest possible and its change of direction will be such as to impede its motion as little as possible. The actual course of the water will be that of the dotted line *a e b f*, Fig. 1. At *a* its motion will be very slow downwards; at *e*, it will increase and its direction gradually change; at *b*, its motion will commence decreasing and its direction changing downward; at *f*, its direction will be down, with a velocity only sufficient to give place to the succeeding water. The area of a horizontal section of the collection of water and its downward velocity will not change during the whole descent from *a* to *c*.

As the motion of the water is entirely arrested by the motion of the wheel, and as this is done in the most simple and least complicated manner possible, the ratio of effect to power will be as great as it is possible to obtain.

History of Turbine Water Wheels.

There have been over 4,000 patents granted for water wheels and improvements on them since the organization of the Patent Office. The first patent recorded was taken out by James Comb, of New Jersey, in 1791, and the next by J. Farman, of New York, in 1808. In 1829 Mr Parker, of Ohio, obtained one for a "percussive and reaction" wheel. Calvin Wing, of N. H., generally, but erroneously, gets the credit of being the first American patentee, but his patent dates after Parker's one year, and after Farman's 22 years. The Parker mill and reaction wheel differs only in the form of the wheel. A patent was granted to Hinman, Bissell & Barnes, of New York, in June, 1811, for employing two wheels at once. Very little can be said of the patents granted previous to Parker's and Wing's, but there is reason to believe that this form of a double wheel was known and in use before 1812.

The general opinion respecting this class of wheels was that they were equal in effect to the undershot wheels. The undershot being driven by direct action and this by reaction, it was set down that, as action and reaction were equal, there could be no difference in the effect, though there might be in price and convenience. They, however, were set down by E. Morris, in 1833, as being only superior to undershot for running in back water. Having made an experiment on a grist mill, driven by a reaction wheel, and published in the Franklin Institute *Journal*, in 1833, he states: "The amount of water required was considerably larger than would have been needed by a breast wheel to do the same work," and he was induced upon the spot to declare an opinion unfavorable to the economy of the reaction wheel under trial. He also states, that although the proprietor was new-fangled with the wheel, yet he afterwards discarded it and restored the old breast wheel to favor and duty. This wheel took 1,600 cubic feet of waterfall one foot per minute, for 60 minutes, to grind and dress one bushel of wheat; he found that an undershot required only 1,576 cubic feet of water to do the same work. These were the conclusions set forth by Mr. Morris in 1842. They were condemnatory of American reaction wheels—consuming, as he stated, 24 cubic feet of water more than an undershot wheel in grinding one bushel of wheat; yet, in one instance, it is stated that they consumed nearly double the amount of water to produce the same effect as an undershot.

Oliver Evans, in his work on milling, published in 1795, alludes to an improvement made on the Parker mill by a James Rumsey thus:

"One of these is said to do well where there is much back water; it being small and of a true circular form, the water does not resist it much. I shall say but little of these, supposing the proprietors mean to treat of them."

Mr. Evans does not state of what the improvements on the Parker mill consisted, as he does not appear to have seen it work. It appears, however, that the improvement consisted in bringing the water to the bottom at the horizontal arms, instead of the top. This was a great improvement, as the lower gudgeons of the spindle were greatly relieved, and the vertical pressure modified, giving the machine greater centrifugal effect. Subsequently, Mr. Whitelaw, of Scotland, attempted an improvement on the Parker mill by bending the two horizontal arms into the form of the letter S. It was claimed at the time that they gave out 75 per cent. of the full power of the water, but this seems rather doubtful. Glynn says: "The invention of the turbine, properly so called, belongs to Mr. Fourneyron, and in its present form it generally consists of a horizontal water-wheel, in the centre of which the water enters, diverging from the centre in every direction; it enters every bucket at once and escapes at the circumference or external periphery of the wheel." The offer of 6,000 francs by the French Government to any person who should succeed in making and arranging a turbine that would give out no less than 70 per cent. of the power of the water employed upon it stimulated Mr. Fourneyron to action. He directed his attention to the subject and constructed a turbine (after experimenting seven years), with the area of its discharge openings of the same size as its inlet orifices, which resulted in his drawing the Government prize. After an immense amount of toil and time consumed by him in making investigations and experimenting on the curves for the guides and buckets, his perseverance and patience received their deserved reward. It appears that the brothers Parker in the United States were experimenting with the reaction wheel about the same time as Fourneyron was in France, but completed their improvement several years before the latter. It is asserted by some that they were the original inventors of the turbine water-wheel. The Jonval is another French wheel, and was invented shortly after the Fourneyron wheel. In the Parker and Fourneyron wheels the water is admitted at the centre and discharged at the periphery. In the Jonval the water enters the buckets above the wheel and passes down, discharging underneath in an inclined spiral direction.

They are called respectively "percussion and reaction wheels," and "centrifugal and reaction wheels." The term percussion and reaction is not strictly expressive, and was adopted before the nature of the action of the water was fully understood, but intimates that these forces are combined in propelling the wheel. When the wheel is running at a slower rate than the water within it both the percussion (or dynamical pressure and centrifuge unite their forces with that of the reaction of jets from the issues. But it is obvious that the simple percussion must cease as the wheel acquires velocity greater than the water within it. In this case, however, the amount of forces tending to propel the wheel is not lessened, because as the percussion diminishes an equivalent is produced by the centrifuge, the force from reaction remaining the same.

In a work entitled "Mecaniques et Inventions Approuves par l'Academie Royal des Sciences," published at Paris in 1736, it is stated that, previous to the commencement of the seventeenth century, neither the overshot nor breast wheels were much in use, if known at all, and that it is uncertain by whom they were introduced. There is before the writer the fac-simile of an engraving the original of which is in the possession of Earl Spencer, being the earliest print of which any certain information can be obtained. It was discovered in one of the most ancient convents of Germany—the Chartreuse, of Buxheime, in Bavaria, pasted within the cover of a Latin manuscript. It represents St. Christopher carrying the infant Saviour across the sea, and is dated 1423. On the lefthand corner is a corn mill turned by an overshot wheel. This goes to prove that its introduction was long anterior to the date assigned by the writer in the work before mentioned. Thus far it has escaped the observation of every writer on hydraulics, including Eubanks, and is an important key to the date of the introduction of overshot wheels. Although this discovery may be of little importance to science, it may, nevertheless, incite those especially interested in this subject to give more attention to the introduction of the various kinds of water wheels, and when giving dates to avoid anachronisms.

The only water-wheels used in the United States up to the year 1830, were undershot, breast, overshot, Rumsey, Tyler, reaction and flutter wheels, all of which were constructed according to the peculiar notions entertained by the different millwrights who set them up. None of those wheels, except the overshot and breast wheel, gave over fifty per cent. of the water-power.

It is most singular that this invention, as well as most others, is the result of an accident in the experiments which were in progress, from 1824 to 1830, by the brothers Parker, the issues of which have revolutionized the application of turbine wheels. The Parkers, residing then in Muskingum county, Ohio, erected a mill on Hill Creek, a few miles above its junction with the Muskingum River.

They put in a common flutter wheel, and as their fall was only about six feet they were con-

siderably annoyed by frequent stoppages, in consequence of back water. The failure of this wheel caused them to search for one that would be more efficient when exposed to back water pressure. The Rumsey wheel, then in considerable use in Ohio, and known as a back-water wheel, was hung horizontally on a vertical shaft, and was peculiarly adapted for driving an up-and-down saw. This the Parkers concluded was not suitable for their mill; and, after considerable reflection, they devised a new motor, consisting of six reaction wheels set in pairs, hung vertically on a horizontal shaft, to which the water was admitted contrary to the wheel's motion. The consequence was the wheel scarcely exercised any power, and it was with the utmost difficulty it could be got to run. Unable to discover the error, they concluded to give up the sawmill. They subsequently erected a grist mill in the same place, and put in a Rumsey reaction wheel on a vertical shaft. They adopted for this wheel improved buckets of cast-iron plates, bolted between rims, the bottom being a wooden disk fastened to the shaft. This wheel was run directly under the forebay, which the water passed into the wheel from a round orifice in the bottom, corresponding in size with the inner circle of the top rim of the wheel.

It happened that the head gates leaked enough water, when shut, to cause the wheel to run. While erecting the gearing and putting in the stones, a plank accidentally fell into the forebay, above the wheel, and lodged against a post in the centre of the forebay; it set in a sloping position, with one end near the wheel and the other resting against the side of the forebay. This accidental position of the plank gave a direction to the water in the forebay which made it assume a vertical motion and enter the wheel in the direction of its rotation. Zebulon Parker's attention was directed to this in consequence of the wheel's nearly doubling its speed. He went to ascertain the cause of this, found the plank and saw the whirling motion given to the inlet water by the wheel. He raised the plank and found that the wheel at once assumed its former motion. Struck with astonishment, he again inserted the plank, which caused the water to circle with the wheel's motion, when immediately the wheel started with a double velocity. He then placed the plank in a contrary position, so as to give a direction to the rate contrary to the rotation of the wheel. The result was the wheel immediately stopped and remained still until the plank was taken away, when it resumed and ran as before. After consulting together for some time, the Parkers arranged the guides for their wheel so as to direct the water downward with a vertical motion coinciding with the rotary direction of the wheel.

This wheel operated in a very superior manner, doing more work than any wheel of the kind had ever been known to do before. This peculiar accident was the cause of the first great step in the improvement of reaction wheels. After experimenting for some time upon this wheel, their knowledge became considerably extended, by which they were enabled to calculate with more certainty the form and size of issues in proportion to the quantity of water and height of fall. In October, 1839, a patent was obtained by the inventors for their wheel. The claims upon which this patent was granted are: 1. The compound vertical percussion and reaction wheel for saw-mills and other purposes, with two, four, six or more wheels on one horizontal shaft; the concentric cylinders inclosing the shaft and the manner of supporting them; the spouts which conduct the water into the wheels from the penstock with their spiral terminations between the cylinders. 2. The improvement in reaction wheels by making the buckets as thin at both ends as they can safely be made, and the rim no wider than is sufficient to cover them, the inner concentric cylinder, the spout that directs the water into the wheel and the spiral terminations of the spout between the cylinders. 3. The rim and planks that form the apertures into the wheel, and the manner of forming the apertures; the conical covering on the blocks, with the cylinder or box, in which the shaft runs, and the hollow gate in any form, either cylindrical, square or irregular.

The Parkers succeeded to a certain extent in introducing their wheels to the public, but found that a great hindrance to their general application was the rapid wearing of the steps. This evil seemed insurmountable for a long time, but was at length removed by admitting the water from the lower sides of the wheels. The patent for this invention was issued in 1840.

It is pleasant to observe to what gigantic proportions the business of manufacturing and building turbine water-wheels has grown within the last quarter of a century. To-day there is a very large amount of capital invested in the business, and some of our most prominent scholars have turned their attention to the study of hydraulics and the scientific construction of motors, and have succeeded in an eminent degree in perfecting the turbine, which is so fast superseding the overshot, undershot, and the breast wheel of our youth, that a few years hence they will be remembered only as relics of the past.

New Patents.

No. 227,803. Paper-Cutting Machine.—Alexander Malm, Brooklyn, N. Y.

No. 227,880. Turbine Water Wheel.—Mirabeau L. Byington, Milledgeville, Ga.

No. 228,041. Machine for Making Wood Pulp.—Norman Cowan, Pulaski, N. Y., assignor of one-half his right to W. F. Austin, same place.

No. 228,102. Binders' and Box Board.—Francis M. Myers, Jersey City Heights, N. J.

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British Notes.

[FROM OUR REGULAR CORRESPONDENT.]

5 Ludgate Circus Building,
London, E. C., May 22, 1880.

I can't say that there is very much news to-day. Raw material seems easier, especially in German rags, which are not nearly so firm. I append at the close of my letter the latest quotations, which I received this morning from a gentleman who is prepared to sell at these prices. The French and Dutch markets keep rather stiff however, owing, I expect, to strong internal demands. So far these grades of foreign rags are remaining at old prices.

Our paper market is very depressed and prices very low. Only this morning I was told by a large paper merchant in Cannon street, that he had been offered 2½d. less 5 per cent. for 15 lb. double crown. This will give you an idea of what buyers think they can do. Of course 15 lb. double crown is a very thin paper, and at 2½d. less 5 per cent. means surely a loss to the maker. Buyers are having a good time and yet it is hard to see what use there is in buying for stock at even ridiculous prices.

The outlook for the trade here lies chiefly in export orders when some margin can be made. At home our paper-makers are so busy cutting each other's throats for the smallest orders, that it is only a question of time when they will be obliged to close. You would be surprised at the eagerness with which some makers strive to outdo their competitors, utterly heedless of the question of the future. Every order executed at 2½d. less 5 per cent. is but a step to 2⅜d. less 7½ per cent., yet they all go in for it as if it were a treat. This action is worth a thousand market reports or any information you can get from paper-makers themselves. It shows that the trade is in a thorough state of beggary.

I see an agency has been opened in Chancery Lane for the sale of Japanese papers. This will never do, but it will last its allotted time. These Japanese papers are new, of course, but they are far too expensive, and after all are nothing particular as to quality.

I have met several American gentlemen here lately, and heard of others being here. Mr. Boorum (Boorum & Pease) was here last week. William Warwick, of Toronto, is here; so is C. S. Plummer (Phil. Hake), and Will and Fred Horn (Koch, Sons & Co.) sailed the day before yesterday for home. I understand business has not been too brisk. Another traveler from your side arrived too for a long journey, but got so homesick he had to return. The fact is, this man was like his great ancestor and could not resist temptation—I mean the temptations of home—so he fled!

For the information of all gentlemen in the trade who come from your side, and whom I would be much pleased to see here, my address is at 5 Ludgate Circus Buildings, close to Fleet street. I mention this, as some gentlemen have had difficulty to find me.

Chemicals.—Business in chemicals cannot be accepted as any criterion of their actual position, inasmuch as attention has been largely detracted by the holidays, thus rendering the bulk of transactions, particularly in the Lancashire district, comparatively small. The condition of affairs has not improved as far as values are concerned, for both manufacturers and dealers who have delivered falling due, are anxious to effect sales on the best terms obtainable. The only preventative to more pronounced collapse is the large trade still being done with America, and which is only maintained at the expense of values. The Board of Trade returns for April give the exports of alkali for the month at 32,703 tons, as against 24,999 tons exported during the corresponding month of 1879, or an increase of 7,704 tons; the increase for the four completed months of the year reaches 11,659 tons. Comparing April and March exports of the current year there is a balance in quantity in favor of the former month of 2,368 tons, but the average prices were higher in March by some 3s. 0d. or 4s. 0d. per ton. The general range of prices, with a few exceptions, may be taken as being as they were last week, with perhaps a rather more weakened tendency.

German Rags.—N W L C, new white linen cuttings, £28 5s.; N W C C, new white cotton cuttings, £25 5s.; S P F F F, white linen, I., £25 5s.; S P F F, do., II., £20 15s.; S P F, do., III., £17 15s.; F F, do., IV., £16; W C, white cotton (C S P F, F F and C S P F F mixed), £18 7s. 6d.; L F B, I., blue linen, I., £17; L F B, II., do., II., £15; B C, blue cotton, £14 10s.; G L, I., gray linen, I., £15 10s.; G L, II., do., II., £12; C P, colored prints, £11; J B, jute baggings, £9 10s. per ton, free on board, Hamburg or Bremen.

W. F. C.

General Notes.

The stock, &c., of W. F. Edwards, publisher of the *Independent*, Alturas, Cal., has been attached.

The contract for the supply of paper for the Internal Revenue Department at Washington has been awarded to S. D. Warren & Co., of Boston, which firm supplied it last year.

Attention is invited to an advertisement in another column, offering for sale the patent for Stilwell's bag machine in Canada, and also in Great Britain and France. This machine is said to be a marvellous invention, and the patent for the United States has been bought by the Union Paper Bag Machine Company.

David Cock, St. Austell, Cornwall, England, has lately published a treatise on china clay—its nature, production and uses. This work, while conveying information of a scientific and technical character, is also practical. The first chapter is introductory, and contains a geological and mineralogical review and account of the kaolin formation. The second chapter treats of processes for raising the clay and sending it to market. The third chapter is devoted to the uses of china clay in the arts and manufactures, with receipts, &c.; and the fourth chapter is supplementary. The work seems to be a desirable contribution upon the subject.

The Morgan Envelope Company, of Springfield, and the Plimpton Manufacturing Company, of Hartford, were the lowest bidders for furnishing the Government with registered package, dead-letter and official envelopes. The price which they will receive is $118,000, and the contract will require some 30,000,000 envelopes. These firms have the same job this year, and have secured it again over three competitors. The work will be done at Hartford.

A new photograph process has been discovered in Japan. One of the substances employed in the manufacture of Japanese lacquer has the property of becoming almost as hard as stone under the action of light. A slab covered with this material and duly exposed behind a photographic negative for twelve hours, is scraped, when the soft parts are rubbed away and the hardened portions stand out in a low relief. The slab can then be used as a block for printing.

Manufacturing News.

EASTERN STATES.

The Crocker Manufacturing Company, Holyoke, will hold its adjourned annual meeting for the choice of officers on June 12.

The new pulp mill of Wilkinson Brothers & Co., at Birmingham, Conn., will be 55x230 feet.

The following is a brief history of the "Old Bridge Mill," at Pawtucket, R. I., which is now engaged in the manufacture of paper: It was erected in about the year 1800, and was originally a story or two lower than at present. It was built for and originally occupied as a linseed oil mill. It was afterwards operated as a machine shop by Pitcher & Brown. In the year 1826 it was first used as a cotton mill by the Bedtick Manufacturing Company, for the manufacture of bed-tickings. It was subsequently occupied by Thayer & Pitcher, in the manufacture of cotton shirtings. This firm continued in the mill until the year 1854, when it was succeeded by Barrows & Ingraham, who continued the same business. This firm was in 1866 succeeded by the Bridge Mill Cotton Manufacturing Company, which continued until within a few months in the manufacture of cotton goods; when it decided to apply the mill to its present use, forming the Bridge Mill Paper Company, the firm being composed of F. H. Richmond & Co., and Amos N. Beckwith, of Providence.

Repairs on the old mill of the Hurlbut Paper Company, at South Lee, Mass., are now so nearly done that the company expects to occupy it in a week or two. It has been generally overhauled, two new engines have been put in and the others refitted, and a new 68-inch machine has been added, so that the daily product will be increased to about 13,000 pounds, 9,000 pounds of which will be made in the new mill. The working force of about 200 hands will be somewhat increased, mainly in the rag rooms.

William N. Johnson and H. A. Emerson have brought the Henniker Paper Mill at Manchester for $60,000.

F. W. Bird, Hollingsworth & Co., East Walpole, Mass., are setting a new steel boiler, with the Jarvis patent furnace.

Tileston & Hollingsworth, Mattapan, Mass., are having two 6x16 feet steel boilers made, which will be set with the Jarvis furnace.

The Fall Mountain Paper Company, Bellows Falls, Vt., is having a new steel boiler made from the highest brand of Benzon steel, which is manufactured by the Siemen-Martin process. The company will set this and one old boiler with the Jarvis furnace.

WESTERN STATES.

The Rock Island Paper Company, Rock Island, Ill., has put a new steam engine into its mill.

The Beloit Straw Board Company, Beloit, Wis., is putting in new engines, water-wheels and other machinery.

The Atlas Paper Company, Appleton, Wis., has bought a new turbine.

The West Point Manufacturing Company West Point, Neb., has added two new rag engines to its plant and has increased its capacity to five tons of wrapping papers daily.

The Moline Paper Company, Moline, Ill., has ordered new engines. It is proposed to secure a steady supply of water for the mill by sinking an artesian well.

A new wood pulp mill is being built at Stroudsburg, Pa., which will soon be ready to start up.

It is stated that the paper mill, at Enon, Ohio, will suspend work after June 1, until the mill has undergone perfect repair.

MIDDLE STATES.

The Wyoming Valley Paper Mill, Pittston, Pa., has added a new steam engine, new stuff chest, &c.

The Mountain Brook Paper Mill, Napanock, N. Y., is changing from straw wrappings to print paper.

The Gouverneur Pulp Company, Gouverneur, N. Y., has procured a mill to grind talc.

The new mill at Boonton, Morris county, N. J., will manufacture about 13 tons of paper and paste board per week and start with about 175 hands. From 60 to 70 men are now engaged on the building.

SOUTHERN STATES.

The Manchester Paper Mill, Richmond, Va., had to stop on Saturday last on account of a coupling on the main shaft, which drives the engines, getting loose. The coupling has been put in order and the mill is running again. This mill runs entirely on manillas.

The Shepherdstown paper mill, at Shepherdstown, Jefferson county, West Virginia, is now in active operation again and turning out good work. It has to this time been lying idle for five years.

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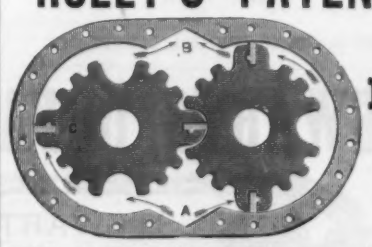

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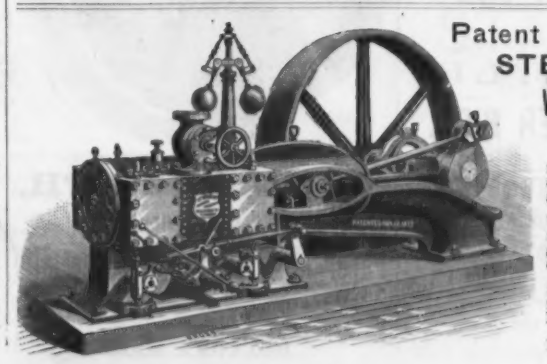

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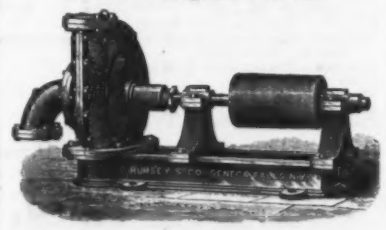

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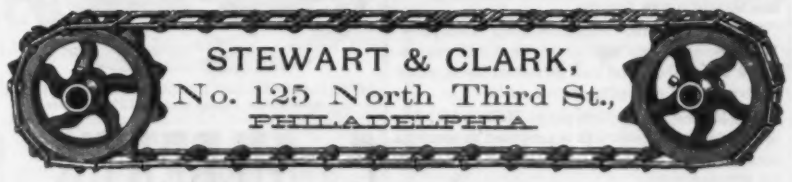


Well adapted for various kinds of Paper Machinery.
THIS CHAIN IS MANUFACTURED OF MALLEABLE IRON AND THOROUGHLY TESTED.

WOOD BELT PULLEYS,
From 10 inches to 15 feet in diameter. For any size belt. Secured to the shaft without keys, set screws, bolts or pins. **Cone Pulleys, Split Pulleys, Dead Pulleys,** doing away entirely and completely with the LOOSE PULLEY NUISANCE.

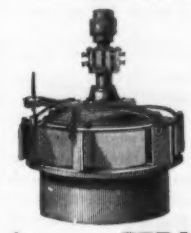
ALSO THE BEST **CLUTCH**
For pulley or coupling ever devised. When in use as coupling or attached to pulley for driving any width belt, the clutch is thrown off gradually and without jar. Ask for Circular.

TAPER SLEEVE PULLEY WORKS
ERIE, PA.

JOHN C. SMITH,
GENERAL MILL REPAIRER.
Paper Mill Machinery a Specialty.
REPAIRS ATTENDED TO BOTH NIGHT AND DAY.
HOLYOKE, MASS.

GEORGE HARLEY,
Importer of California Rags.
And Dealer in
WOOLEN and COTTON RAGS, and all kinds of PAPER STOCK.
362, 365 & 367 THIRD STREET
between Avenue D and Lewis St., NEW YORK.

STOUT, MILLS & TEMPLE,
MANUFACTURERS OF THE



AMERICAN TURBINE
Water Wheel,
GEARING AND SHAFTING.
Rag Engines,
Wood or Iron Tubs,
Rag Cutters,
Dusters,
Pumps, &c.
THE AMERICAN TURBINE, as recently improved, utilizes a higher average percentage of power than any Turbine ever known, which justly entitles it to the position claimed for it as the **BEST** Water Wheel in the world.
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Chemical
WOOD FIBRE
SUITABLE FOR
Fine News, Book and Writing Papers.
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Manufactured and for Sale by
The American Wood Paper Co.
For Samples and Terms apply to
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The Empire Felts.
FOURDRINIER & CYLINDER
Wet and Press Felts,
JACKETING,
Strainer Cloth and Roller Cloth,
MANUFACTURED BY
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At the Kenwood Mills,
ALBANY, N. Y.
(Formerly of Rensselaerville, N. Y.)
All Grades and Sizes kept in Stock.
☞ Orders promptly filled.
Entire Satisfaction Guaranteed.
☞ Will send Price List upon application.

WATERBURY
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EMPIRE FELTS.
OLD! TRIED! RELIABLE!
CYLINDER AND FOURDRINIER
Wet and Press Felts and Jackets.
MANUFACTURED BY
H. WATERBURY & SONS,
Oriskany, Oneida Co., N. Y.
Successors to H. WATERBURY & CO., of Rensselaerville, Albany Co., N. Y.)
In ordering Felts give kind of stock used and quality of paper made, and we warrant Felts that will please.
☞ Orders promptly filled.
Price Lists sent upon application.
All Felts sent out by us warranted to work well or may be returned.

DIRECTORY.

Cards under this heading will be charged for at rate of $15 per annum for each card.

NEW YORK HOUSES.

Jute Butt Brokers.

CABOT, BOWLES & CO., 81 Water st
CROCKER, HENRY H., & CO., 134 Pearl st., N. Y.
DALAND, WILLIAM S., 124 Water st., N. Y.
MOSES & COHEN, 105 Water st. Special attention paid to buyers' interests in purchasing and shipping.
TUCKERMAN, G., 72 Beaver st., N. Y.

Machinery Oils.

NEW YORK LUBRICATING CO., 126 Maiden lane. Lubricating Oils and Compound for Paper Mills.

Note Broker.

COLBY, C. A., Buys and Sells Notes of Paper Manufacturers and Dealers, 22 Nassau st., N. Y.

Paper and Paper-Makers' Supplies.

ANDERSON, J. F., Jr., & Co., 34 Beekman st.
BARRETT & CROTTY, 85 Centre st., N. Y.
BENEDICT & HIGHET, 118 William st.
BUTLER & JOHNSON, Dealers in Paper, 44 Beekman street, N. Y.
ELY, EUGENE & SON, Dealers in Paper Stock, 85 Cliff st., N. Y.
FLEMING, MILLER & USSING, 71 John st., N. Y.
HARD, MELVIN & SON, 25 Beekman st.
HEWITT, C. B., & BRO., 48 Beekman st.
HUBBS & LAMB, 36 Beekman st., N. Y.
HULBERT, H. C., & CO., 13 Beekman st.
MURPHY, JOHN J., 47 John and 5 Dutch sts.
PERKINS & GOODWIN, 84 Duane st.
WATSON, GEORGE, Jr., 63 Beekman st.

Paper-Makers.

HAND & ELSWORTH, White and Colored Tissue and Copying Paper, at Peekskill, N. Y. Paper Warehouse and office, 51 Beekman st., N. Y.
ORRS & CO., Printing and Hanging Mills at Troy, Office, 39 Park Row, New York.

Paper-Makers' Chemicals and Colors.

HELLER & MERZ, Ultramarine, 55 Maiden lane, N.Y.
RIKER, J. L. & D. S., 45 Cedar st.
SERGEANT BROS., 78 William st, N. Y.

Rags and Paper Stock.

ATTERBURY BROS., 253 & 255 Front st.
BRIGGS & TAYLOR, 60 Duane st.
BUCHANAN, M. T., 279 Front st.
COHN, LAZARUS & CO., 253 Pearl st., N. Y.
CORRIGAN, PATRICK, 700 Second ave., N. Y.
DALY, DANIEL, 386 Water st., N. Y.
DAMERY, JAMES, 251 & 259 Front st., N. Y.
EVANS, T. J., N. W. Corner Frankfort and William sts., N. Y.
FITZGERALD, JAMES M., & CO., Paper and Paper Stock. 137 South Fifth ave., N. Y.
GILDEA, PATRICK, 445 and 447 West 13th st.
HARLEY, GEORGE, 362, 365 & 367 Third st., N. Y.
KEENAN'S, OWEN, SON, Established 1840. 448 Pearl st., N. Y.
KENDALL BROS. & GODDARD, 66 John st., cor. William, N. Y.
LIBMANN, JOSEPH, & CO., New Rags a Specialty. 3 Howard st., N. Y.
LYON, J. W., & CO., 35 Park st.
MAHARIN, M. A., Metals, 513 Washington st
McQUADE, ARTHUR J., Foreign & Domestic Woolen and Cotton Rags, 535 & 537 E. 13th st., N. Y.
O'MEARA, M., 27 Centre st.
PFLUGNER, J. C., Cotton and Woolen Rags, 404 and 406 West Forty-first street.
RING, M. A., & SONS, (413 Atlantic ave., Boston, 139 North Front st., Philadelphia), 534 Pearl st., N. Y.
SAVAGE, JAMES, 386 & 388 Seventh ave., N. Y.
SERGEANT BROS., 78 William st., N. Y.
SMITH, JAMES F., Jute Waste, Bagging and Rope, 36 Peck slip, N. Y.
SMITH, THOMAS, 30 Hester st.
TAYLOR, M. A., Paper and Paper Stock, 398 Broome st., N. Y.
TAYLOR, E. W., Packer of the celebrated Brand Diamond T. Rags, 8 and 10 Reade st., N. Y.
WARD, OWEN, 448 & 450 West 39th st.

Straw Boards.

BUTTERFIELD, H. A., 548 Pearl st., near Broadway.
HAYES, JAMES E. & CO., 75 Duane st.

Watchman's Time Detector.

IMHAUSER, E., 212 Broadway, N. Y. (With Safety Lock Attachment.)

Wire Cloth.

LANG, MARIUS, Importer of Wire Cloth, 94 Bleecker st., N. Y.

OUT OF TOWN HOUSES.

Binders' Boards.

SHEEDER, J. FRED., Mfr. of Album, Binders', Trunk and Button Boards, Kimberton, Pa.
BARBER, J. & J. S., Paper Stock and Binders' Boards, 621 and 623 Commerce st., Philadelphia, Pa.

Dandy Roll Manufacturers.

CHENEY BIGELOW WIRE WORKS, Springfield, Mass. Pat. Seamless Wove and Laid Dandy Rolls.

Paper Bags and Flour Sacks.

BLOOMINGTON PAPER AND BAG CO., "Acme" Satchel Bottom Bags, 38 & 40 La Salle st., Chicago, Ill.
RIBBANS & CO., Wholesale Paper & Twine Warehouse, Paper Bags and Flour Sacks, Newark, N. J.

Paper-Cutters.

HOWARD IRON WORKS, Buffalo, N. Y.

Paper Makers' Chemicals and Colors.

BLANCHARD, J. HENRY, Chemicals and Wood Pulp, 36 Batterymarch st., Boston, Mass.
MITCHELL, WM. H., 43 N. Front st., Philadelphia.

Paper-Making Machinery.

CUSHMAN, DWIGHT, Hartford, Conn. Manufacturer of Flume and Scroll Turbine Wheels.
HOLYOKE STEAM BOILER WORKS, Manufacturer of Steam Boilers (B. F. MULLIN), Holyoke, Mass.
SMITH, WINCHESTER & CO., South Windham, Ct.

Paper Manufacturers.

CONSOLIDATED PAPER CO., 97 Washington st., Chicago, Ill. J. W. FRENCH, Pres.; C. M. SMITH, Treas.; R. P. DART, Sec.
JERSEY CITY PAPER CO., White and Colored Tissue and Manilla Paper, 211 Wayne st., Jersey City, N.J.
SCOTT PAPER CO. (Limited), 27 N. 6th st., Philadelphia. Flour Sack, Building & other Manilla Papers.

Rags, Paper and Paper Stock.

BUTLER, THOMAS, Dealer in Paper Stock, Woolen Rags, &c., 249 Causeway st., Boston, Mass.
COCHRAN & YOUNG, Paper Mfrs. and Wholesale Dealers in Cotton & Woolen Rags, Erie, Pa.
DORAN, A., Wholesale Dealer in Paper and Paper Stock, 6 & 8 Union st., Bridgeport, Conn.
ERIE CITY RAG WAREHOUSE, 13 East Fifth st., Erie, Pa.
B. FELSENTHAL & BROS., Paper, Bags, Twine, Woolen & Cotton Rags, 156-160 S. Desplaines st., Chicago.
FOLLANSBEE, TYLER & CO., 124 & 126 Quincy st., Chicago, Ill. Refer to J. W. Butler Paper Co.
GILBERT, WM., & CO., Paper and Woolen Mfs' Materials. 11 & 13 Market st., Chicago, Ill.
GRAHAM & BRO., H. B., Paper Warehouse and Stock Dealers, St. Louis, Mo.
HARRIS, M. & BROS., 403 & 405 Fifth ave., Chicago, Ill. Branch Houses: Dubuque, Ia.; Burlington, Ia.
HARRISON, JAS., Wholesale Dealer in Paper, Paper-Makers' Material, Cot. & Woolen Rags, Pittsburg, Pa.
LANEY, JAMES, & CO., Dealer in Paper and Paper Stock, Cotton and Woolen Rags, Rochester, N. Y.
LOEWENTHAL BROS., Woolen Rags, Paper Stock, 10 & 12 No. Canal st., Chicago.
LOEWENTHAL, B., Dealer in Paper Stock and Woolen Rags, 51 W. Lake st., Chicago, Ill
McARDLE & HART, Cotton & Woolen Rags and Paper Stock, 290 & 291 West st., N.Y., & Newburg, N.Y.
MARKLE, C. P. & SONS, Mfs. of Printing and Glazed Hardware. 126 Second av., Pittsburg, Pa.
MAYER, A. B., Rags and Paper Stock Dealer, 1014, 1030 & 1032 N. Twelfth st., St. Louis, Mo.
MOERS, E. M., Dealer in Old & New Metals, all kinds of Wool & Paper Stock, 20 E. 2d st., Cincinnati, O.
NATIONAL PAPER CO., Holyoke, Mass. Dealers in Paper and Paper Stock. Storage Warehouse.
RICHMOND & CO., F. H., Paper and Paper Stock Warehouse, Cotton Waste Dealers, Providence, R. I.
SNIDERS, LOUIS' SONS, Manufacturers and Wholesale Paper Dealers, 121 Walnut st., Cincinnati, O.
WINKLER, ISAAC, & BRO., Wholesale Dealers in Woolen Rags, Paper Stock, and Manufacturers' Supplies generally, 18 & 20 Main st., Cincinnati, O.
ELLIOT, A. G., Paper & Paper Stock, 727 Chestnut and 726 Jayne sts., Philadelphia.
SIMMONS, JOHN, Wholesale Dealer in Paper and Rags. 20 & 22 Decatur st., Philadelphia.
WALSH, D. J., & CO., 6 South Front st., Philadelphia. *All Kinds of Woolen Rags Bought for Cash.*

Screen Plate Manufacturers.

ANNANDALE SCREEN PLATE CO., Repairing Old Plates a Specialty. P. O. Box 309, Paterson, N. J.
ASHMUN SCREEN PLATE CO., Old Plates renewed; charges moderate; P. O. Box 210, Paterson, N. J.
JUDSON, HOWARD, No. 9 Ailing st., Newark, N. J. Screen Plates Renewed by the New Process.

Straw Boards and Straw Wrapping.

BAUER J. C. & CO., 127 N. 4th st., Philadelphia. Straw Boards, Colored Papers, &c. Lining a specialty.
TUCKER'S, E., SONS, Straw Boards, Paper and Paper-Box Mach'y, 100 Trumbull st., Hartford, Ct.

Wire-Cloth Manufacturers.

HOLYOKE WIRE WORKS, Fourdrinier Wires and Dandy Rolls. BUCHANAN, BOLT & CO., P. O. Box 468, Holyoke, Mass.

FOREIGN HOUSES.

Rags and Paper Stock.

WALKER, J. R., Dealer in Paper Stock, Woolen Rags and Scrap Metals, 30 & 34 Foundling st., Montreal.

IMPORTATIONS OF PAPER STOCK, PAPER, BOOKS, CHEMICALS, &c.

IMPORTS of Paper and Paper Materials, Books, &c., at the Port of New York, for the week ended May 28, 1880. Quantity given in packages when not otherwise specified.

Aniline Colors	182	$12,519
Alum	—	—
Aluminous Cake	—	—
Bleaching Powders	468	7,732
Soda Ash	3,690	91,767
Soda, Bicarb	—	—
Soda, Caustic	1,570	23,135
Soda, Sal	1,492	8,145
Ultramarine	165	5,944
Books	386	41,771
Newspapers	37	2,983
Engravings	22	6,617
Ink	18	1,185
Lead Pencils	13	2,355
Paper	619	19,982
Steel Pens	2	4,069
Stationery	15	1,061
Slate Pencils	8	99
Clay	—	6,491
Jute Butts	—	—
Jute Rejects and Cuttings	2,000	24,019
Paper Hangings	11	1,302
Paper Stock	15,573	285,670
Terra Alba	—	—
Waste	63	5,475
Totals	26,316	$552,291

TOTAL IMPORTS.

General Merchandise, for the week ended May 28	$8,136,589
Paper, Paper Stock, &c.—	
For the year ended May 29, 1873	15,074,825
For the year ended May 22, 1874	13,150,855
For the year ended May 21, 1875	13,292,891
For the year ended May 26, 1876	11,293,406
For the year ended May 25, 1877	9,627,694
For the year ended May 24, 1878	10,246,413
For the year ended May 23, 1879	9,561,091
For the quarter ended Aug. 22, 1879	2,439,969
For the quarter ended Nov. 21, 1879	3,146,112
For the quarter ended Feb. 20, 1880	3,130,290
For the week ended Feb. 27, 1880	403,343
For the week ended Mar. 5, 1880	314,211
For the week ended Mar. 12, 1880	264,332
For the week ended Mar. 19, 1880	277,051
For the week ended Mar. 26, 1880	215,202
For the week ended Apr. 2, 1880	261,327
For the week ended Apr. 9, 1880	212,790
For the week ended Apr. 16, 1880	253,385
For the week ended Apr. 23, 1880	501,929
For the week ended Apr. 30, 1880	628,992
For the week ended May 7, 1880	487,851
For the week ended May 14, 1880	414,138
For the week ended May 21, 1880	356,929

IMPORTS of Rags and Paper Stock at the Port of New York, since Jan. 1, 1880, from the following Ports, showing quantities from each Port.

	Rags. Bales.	*Paper Stock.* Bales.	*Manilla Stock.* Bales.
Alexandria	1,013	—	—
Amsterdam	—	1,580	—
Antwerp	4,431	11,556	794
Amoy	4	—	—
Aspinwall	—	55	—
Bermuda	20	—	—
Bremen	1,458	2,990	186
Bristol	602	2,397	118
Buenos Ayres	—	76	—
Calcutta	890	50	—
Cardiff	5	1,018	263
Catania	451	—	—
Copenhagen	370	—	—
Curacoa	1	—	—
Dantzig	422	408	—
Dundee	—	1,629	570
Glasgow	1,889	10,557	146
Genoa	3,485	150	—
Guantanamo	—	26	—
Hull	3,053	11,893	157
Hamburg	1,638	4,857	—
Havre	—	879	—
Hayti	20	29	—
Hiogo	400	631	—
Jamaica	54	25	—
Leith	165	2,008	—
Libau	—	978	—
London	5,153	32,987	4,406
Liverpool	1,364	12,795	444
Leghorn	8,821	273	—
Malta	472	—	—
Middleboro	—	168	—
Montevideo	—	37	—
Nassau	33	—	—
Newcastle	616	6,007	1,475
Odessa	154	—	—
Oporto	187	—	—
Pillau	1,722	1,848	—
Point a Pitre	—	8	—
Rotterdam	—	43	—
Singapore	474	—	—
Stettin	377	747	—
Trieste	846	—	—

EXPORTS of Paper, Books, &c., from the Port of New York to Foreign Ports for the week ended June 2, 1880, with Aggregates and Values.

BOOKS, cases, to Hamburg, 3; to Bremen, 2; to Liverpool, 23; to London, 1; to British West Indies, 1; to Cuba, 2; to Africa, 18; to Venezuela, 4; to United States of Colombia, 3.

PAPER, to United States of Colombia, 4 pkgs.; to Brazil, 2,962 rms.; to Madagascar, 5 cs.; to Mexico, 37 cs.; to Dutch West Indies, 0 cs.; to Hamburg, 42 cs.; to Bremen, 1 cs.; to Liverpool, 9 cs.; to London, 59 cs.; to British West Indies, 1,295 rms.; to British Guiana, 1,500 rms.; to Cuba, 1,000 rms., 20 cs.; to Porto Rico, 209 pkgs.; to Central America, 1 cs.; to Venezuela, 334 cs.

STATIONERY, cases, to Dutch West Indies, 5; to Hamburg, 6; to Bremen, 9; to Liverpool, 3; to London, 3; to British West Indies, 12; to Porto Rico, 22; to Central America, 2; to Africa, 2; to Venezuela, 14; to United States of Colombia, 17; to Brazil, 6; to Madagascar, 2; to Mexico, 15.

AGGREGATES AND VALUES.

Paper, reams	6,747	$2,593
Paper, pkgs	214	486
Paper, cases	518	10,363
Books, cases	57	4,307
Rosin, bbls	9,257	29,405
Stationery, cases	118	4,520
Totals	16,911	$51,674

TOTAL EXPORTS.

General Merchandise, for the week ended June 2, 1880	$8,042,822
Paper, &c., for the year ended May 27, 1873	2,869,492
Paper, &c., for the year ended May 26, 1874	1,783,877
Paper, &c., for the year ended May 25, 1875	2,327,682
Paper, &c., for the year ended May 23, 1876	1,654,394
Paper, &c., for the year ended May 29, 1877	1,790,669
Paper, &c., for the year ended May 28, 1878	1,576,562
Paper, &c., for the year ended May 27, 1879	1,889,783
Paper, &c., for the quarter ended Aug. 27, '79	425,612
Paper, &c., for the quarter ended Nov. 26, '79	544,118
Paper, &c., for the quarter ended Feb. 25, '80	457,374
Paper, &c., for the week ended Mar. 3, 1880	29,833
Paper, &c., for the week ended Mar. 10, 1880	68,424
Paper, &c., for the week ended Mar. 17, 1880	33,290
Paper, &c., for the week ended Mar. 24, 1880	65,735
Paper, &c., for the week ended Mar. 31, 1880	30,111
Paper, &c., for the week ended Apl. 7, 1880	44,823
Paper, &c., for the week ended Apl. 14, 1880	39,837
Paper, &c., for the week ended Apl. 21, 1880	16,693
Paper, &c., for the week ended Apl. 28, 1880	45,910
Paper, &c., for the week ended May 5, 1880	59,384
Paper, &c., for the week ended May 12, 1880	68,927
Paper, &c., for the week ended May 19, 1880	32,532
Paper, &c., for the week ended May 26, 1880	53,942

NEW YORK IMPORTS.

FROM MAY 26 TO JUNE 2, 1880, INCLUSIVE.

Rags, &c.

J. L. Taylor, Alameda, Liverpool, 123 bs. paper stock.
Hayward & Perry, by same, 210 bs. paper stock.
C. Kohlmann, Kong Eystien, Amsterdam, 73 bs. paper stock.
S. W. Parker, F. N. Thayer, Liverpool, 239 bs. paper stock.
J. L. Taylor, by same, 166 bs. paper stock.
M. A. Ring & Sons, Monsoon, Glasgow, 145 bs. paper stock.
Lee & Sturges, Ivanhoe, Antwerp, 985 bs. paper stock.
Lee & Sturges, Marengo, Hull, 600 bs. paper stock.
Lewy Bros., by same, 26 bs. paper stock.
Cohn, Lazarus & Co., by same, 28 bs. paper stock.
R. B. Briggs, Crown Prince, London, 662 bs. paper stock.
J. L. Taylor, by same, 198 bs. paper stock.
R. B. Briggs, Titania, Middleboro, 168 bs. paper stock.
S. W. Parker, Edward Kidder, Leith, 63 bs. paper stock.
Fett & Sengstak, Frederika, Stettin, 75 bs. paper stock.
Lewy Bros., by same, 50 bs. paper stock.
Lee & Sturges, Helvetia, Liverpool, 294 bs. paper stock.
S. W. Parker, by same, 228 bs. paper stock.
S. W. Parker, C. S. Bushnell, London, 118 bs. paper stock.
J. W. Lyon & Co., by same, 258 bs. paper stock.
J. L. Taylor, by same, 73 bs. paper stock.
J. L. Taylor, Blackwall, London, 649 bs. paper stock.
J. L. Taylor, Endymion, Liverpool, 196 bs. paper stock.
J. L. Taylor, Litana, Liverpool, 133 bs. paper stock.
J. L. Taylor, Plymouth Rock, London, 421 bs. paper stock.
R. B. Briggs, by same, 196 bs. paper stock.
Lee & Sturges, by same, 500 bs. paper stock.
J. W. Lyon & Co., Olga R., Leith, 174 bs. paper stock.
Jonas Phillips & Co., Caledonia, Leghorn, 153 bs. paper stock.
Munzinger & Pitzippio, by same, 80 bs. paper stock.
J. L. Taylor, Midas, Liverpool, 64 bs. paper stock.
W. I. Clark, State of Alabama, Glasgow, 52 bs. paper stock.
W. H. Parsons & Co., by same, 118 bs. paper stock.

Paper.

C. H. George, Bothnia, Liverpool, 4 cs. hangings.
Edward Kimpton, by same, 8 cs.
Kaufmann Bros., Saragossa, Liverpool, 8 cs.
Scoville Manufacturing Company, Zeeland, Antwerp, 1 cs.
Mayer, Merkell & Co., Neckar, Bremen, 3 cs.
Geo. J. Kraft, by same, 2 cs.
Henry Bainbridge & Co., by same, 2 cs.
Roth & Lips, Amsterdam, Rotterdam, 4 cs.
W. Heneman, Britannic, Liverpool, 10 bales.
J. M. Montgomery, by same, 5 cs.

BOSTON IMPORTS.

FROM MAY 27 TO JUNE 2, 1880, INCLUSIVE.

[NOTE.—By order of the Treasury Department at Washington the names of importers of merchandise at this port are withheld from the press. Parties wishing their names to appear in the reports of imports will please communicate with J. Henry Blanchard, No. 36 Batterymarch street.—ED.]

Books.

Stone & Douner, Palestine, Liverpool, 28 cs.
Little, Brown & Co., Parthia, Liverpool, 8 cs.
N. J. Bartlett & Co., by same, 1 cs.
Order, by same, 2 cs.
A. A. Brown, by same, 2 cs.
Estes & Lauriat, by same, 1 cs.
Lockwood, Brooks & Co., by same, 12 cs.
C. Schoenhof, by same, 1 cs.
Order, by same, 1 cs.
Order, by same, 1 cs.

Paper.

Order, Glaucus, New York, 4 cs. album.
Order, Malta, Liverpool, 5 cs. tracing.
Order, by same, 5 cs. drawing.
Frost & Adams, Bulgarian, Liverpool, 4 cs. drawing.
C. Reid, by same, 1 cs. manufactured.
W. H. Cundy, by same, 2 cs. music.
O. Ditson & Co., by same, 5 cs. music.
H. Partridge & Co., Virago, Hull, 18 cs. album.

Paper Stock.

R. B. Briggs, Bulgarian, Liverpool, 12 bs. rags.
Train, Smith & Co., Minnesota, Liverpool, 100 bs. paper stock.
C. A. Cheney, Palestine, Liverpool, 60 bs. rags.
H. M. Knowles, by same, 91 bs. paper stock.
Order, by same, 130 bs. rags.
Laforme & Frothingham, Iberian, Liverpool, 201 bs. rags.
Dutton & Schenck, by same, 160 bs. paper stock.
Train, Smith & Co., by same, 114 bs. rags.
H. M. Knowles, Pembroke, Liverpool, 314 bs. paper stock.
C. A. Cheney, Massachusetts, Liverpool, 212 bs. paper stock.
C. A. Cheney, Hooper, London, 82 bs. paper stock.
S. D. Warren & Co., by same, 393 bs. paper stock.
Crocker, Burbank & Co., by same, 318 bs. paper stock.
W. H. Parsons & Co, by same, 14 bs. rags.
Haskins & Montague, Worcester, Halifax, 41 bs. paper stock.
E. P. Dunbar, Dominion, Yarmouth, 1 lot junk.
Hill & Cutler, Seminole, Savannah, 25 bs. paper stock.
Haskins & Montague, by same, 11 bs. paper stock.
Androscoggin Mills, by same, 18 bs. paper stock.
Mansfield & Chase, by same, 18 bs. rags.

Soda Ash.

Warren & Co., Palestine, Liverpool, 123 cks.
Morey & Co., Malta, Liverpool, 62 cks.
Warren & Co., Massachusetts, Liverpool, 171 cks.
Morey & Co., Aleppo, Liverpool, 40 cks.
Warren & Co., Pembroke, Liverpool, 210 cks.
W. B. Reynolds & Co., Iberian, Liverpool, 28 cks.
J. L. & D. S. Riker, by same, 165 cks.
J. L. & D. S. Riker, by same, 7 cks. alkali.

Caustic Soda.

Edward Hill, Iberian, Liverpool, 100 drums.

Bleaching Powder.

Warren & Co., Palestine, Liverpool, 234 cks.
J. L. & D. S. Riker, Bulgarian, Liverpool, 163 cks.
Morey & Co., Parthia, Liverpool, 96 cks.
Morey & Co., Aleppo, Liverpool, 185 cks.
Warren & Co., Massachusetts, Liverpool, 233 cks.
J. L. & D. S. Riker, Iberian, Liverpool, 78 cks.

Hide Cuttings.

Order, Virago, Hull, 162 bags.

PHILADELPHIA IMPORTS.

Rags, &c.

Brown Bros. & Co., Indiana, Liverpool, 8 bs. rags.

Soda Ash.

Brown Bros. & Co., Wm. A. Campbell, Liverpool, 60 cks., 52 tcs.
Churchman & Co., by same, 60 cks.
E. Yarnall, by same, 52 tcs.
Order, by same, 236 cks.
Cooper, Smith & Co., Indiana, Liverpool, 63 tcs.
Order, by same, 47 cks.
Order, Alabama, Liverpool, 76 cks., 54 tcs.

Soda Crystal.

Order, Alabama, Liverpool, 280 bbls.

Bleaching Powder.

Churchman & Co., Wm. A. Campbell, Liverpool, 73 tcs.
Order, by same, 188 tcs
Order, Alabama, Liverpool, 95 tcs.

Paper Stock.

Order, Josephine, London, 738 bs. paper stock.

BALTIMORE IMPORTS.

Soda Ash.

Order, Monica, Newcastle, 851 pkgs.
Order, Wayfarer, Liverpool, 52 pkgs.

Soda Crystal.

Order, Monica, Newcastle, 500 pkgs.

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FOR PAPER MILLS.

This oil has been extensively used by Paper Manufacturers throughout the United States for several years, giving in all cases perfect satisfaction. It is a pure, dark mineral oil, prepared without heating, perfectly free from anything injurious to machinery, wears as well as lard oil, and does not gum or chill in cold weather. Send for sample barrel. Price, 30 cents per gallon. The following are some of the manufacturers who have used this oil for several years, and to whom reference can be made:

Cleveland Paper Co., Cleveland, O.; C. R. Markle & Sons, Pittsburg, Pa.; Rochester Paper Co., Rochester, N. Y.; John Hoyt & Co., Manchester, N. H.; Riverside Paper Co., Holyoke, Mass., &c., &c.

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GEO. ALLEN, Franklin, Pa.

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Merrill & Houston Iron Works,

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Beater Engines, Rag Cutters, Paper Cutters, Pumps, Shafting, Pulleys, Hangers, &c.

CHILLED ROLLS,

Guaranteed equal to any made.

Plans and Estimates furnished, and special attention given to the execution of contracts for the entire machinery necessary to make any kind of Paper, set up, ready to run.

Calenders and Press Rolls reground by special machinery.

The attention of Water-power Users desiring the highest efficiency is especially directed to the

HOUSTON TURBINE WATER WHEEL.

SMITH, WINCHESTER & CO.,

South Windham, Conn.,

— MANUFACTURERS OF —

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Fourdrinier and Cylinder Machines. Washing and Beating Engines. Air Drying Machinery for Drying Sized Papers. Sole Manufacturers of the Jordan Patent Beating Engine, which has no rival for clearing the stock for fine papers. Chilled Iron and Paper Roll Super Calenders. Plate Calenders, Chilled Stack Calenders, Rag Cutters, Hand and Power Cutting Presses and Stop Cutters.

The Hatch Patent Stop Cutter, the only Cutter that can be regulated to cut between water marks of writing papers. Screens, Brass and Nickel Plated, the latter warranted to wear twice as long as brass. Bed Plates, Roll Bars, Fan and Plunger Pumps. Also, Gun Metal Covered Rolls, for Size and Press Rolls. Stevenson Water Wheels. Shafting and Mill Gearing generally.

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The Paper Trade Journal.

DEVOTED EXCLUSIVELY TO THE INTERESTS OF

The American Paper Trade.

Weekly, $4.00 per annum.

Single Copies, . . . 10 Cents

NEW YORK: SATURDAY, JUNE 5, 1880.

Advertisements cannot be received for insertion in the current week later than 9 A. M. on Friday. The charge for advertising is 25 cents a line, each insertion. Special terms for standing and displayed advertisements to be had on application. Card in Directory Column and one copy of paper, $10 a year.

THE PAPER TRADE JOURNAL is the recognized organ of the various Paper-Makers' Associations of the United States.

THE JOURNAL contains the latest and fullest information relative to the paper trade in all parts of the world, including descriptions of new appliances and processes for making paper, experiments with new fibres and other materials, a record of the water supply, with the latest manufacturing news in all parts of the country. It gives the cream of all the foreign technical journals which relate to the paper interest, besides communications from competent persons in the trade, both at home and abroad. The market review and quotations show the state of trade in all the principal cities, and no pains have been spared to make these accurate and complete.

Subscription and postage for Great Britain, per annum	£1
Subscription and postage for France, per annum	25 francs
Subscription and postage for Germany, per annum	24 reichsmark

Foreign subscribers may address our New York office.

Communications on matters of interest to the trade are earnestly solicited from all quarters, and if used will be liberally paid for. Items of news, and facts of all kinds in relation to the state of the mills, &c., will be gladly received.

All communications must be addressed to

HOWARD LOCKWOOD,

Publisher and Proprietor,

No. 74 Duane street, N. Y.

BRANCH OFFICES.

Eastern Office: J. F. RIDAY, General Manager, 36 & 38 BROMFIELD STREET (Wesleyan Building), BOSTON, MASS.

Philadelphia Office: J. VIENNOT, General Manager, 702 CHESTNUT STREET.

Western Office: P. G. MONROE, General Manager, 8 LAKESIDE BUILDING, CHICAGO, ILL.

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John L. Sprague	Gibraltar, Spain.
Leonardo Pardo	Vigo, Spain.
S. H. Haine	Antwerp, Belgium.
G. Galvagno	Turin, Italy.
S. Bernard	Venice and Florence, Italy.
G. Gade	Christiana, Norway
J. H. de Bussy	Amsterdam, Holland, and the Dutch East Indies.
Gordon & Gotch	Melbourne and Sydney, Australia.
Frearson & Bro	Adelaide, South Australia.
Upton & Co	Auckland, New Zealand.
R. T. Wheeler	Dunedin, New Zealand
W. Snelling	Brisbane, Queensland
A. G. Webster	Hobart Town, Tasmania.
Knight & Co	Newchwang, China.
Kelly & Walsh	Shanghai, China.
Kelly & Co	Yokohama, Japan.
A Illustracao Brasileira	Rio de Janeiro, Brazil.
Camilo Garcia	Puntarenas, Costa Rica.
Federico Caine	Havana, Cuba.
Seymour Keeler	Valdivia, Chili.
E. P. Pellet	Barranquilla, Colombia.
Pedro Obregon	La Guaira, Venezuela.
Imp. de "El Ferrocarril"	Montevideo, Uruguay.
Bethencourt e hijos	Curaçoa, W. I.
Da Costa & Co	Barbadoes, W. I.
Chas. Bartlett, Jr. & Co	St. Pierre, Martinique, W. I.
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Thomas G. Thrum	Honolulu, Sandwich Islands.
John G. Clark	Kingston, Canada.
C. Haight	Toronto, Canada.

TO CORRESPONDENTS.

As THE PAPER TRADE JOURNAL *is the recognized vehicle of communication in matters of trade interest, we will be glad to receive correspondence from all parts of the country. Information and suggestion upon paper-making topics are especially valuable, and manufacturing news and personal items are equally acceptable.*

Subscribers to THE JOURNAL can be supplied with the best cloth binder in the market. Deliverable at the publication office. Price, $1.25.

Readers of this paper who avail themselves of the information obtained from its columns, by advertisement or otherwise, are requested to notify their correspondents of the source of their information.

THE opening of the Eighth Cincinnati Industrial Exposition is announced for September 8. We are told that the arrangements already consummated for this Exhibition are an assurance that it will be superior in many respects to expositions that have preceded it.

THE French paper trade are persistent in pushing their demand for the abolition of the tax on paper. An amendment to the French budget for 1881 providing for the suppression of this duty has been presented, and it is thought to have some chance of success, inasmuch as it will be supported by members of all of the different political factions in the French Legislature.

THE Eaton bill providing for a tariff commission has passed the Senate, and this, we suppose, may be taken as an indication that all further tariff legislation for this session of Congress is practically at an end. The advocates of lower duties on paper and pulp can afford to await the presentation of the views of a commission such as that proposed, and any action resulting from the work of the commission would be more intelligently taken, better understood, and more willingly acquiesced in than would be the case with the crude and hasty projects heretofore projected.

INASMUCH as considerable conflict has arisen over the rejection of paper stock delivered on old contracts as the result of the decline in prices, some means should be provided for making amicable settlements and avoiding the worry and expense of lawsuits, which do no good to the trade and for the most part impair the character and standing of litigants. There is no reason why the trade should be anxious or ready to pay lawyers' fees. If they can keep away from the courts so much the better for them, as the delays and cost of lawsuits are far greater than most of the trade conceive. It would be well to call a meeting of the trade and establish a system of arbitration, by which most questions of quality, delivery, &c., could be decided without a recourse to law.

CONGRESS has a modicum of sense left. An attempt was made to kill the Voelter wood pulp patent, and a bill repealing the act extending it was introduced into the House of Representatives. Without considering the merits of the patent, or even the methods by which it was extended, it has seemed to us absurd to seriously consider any proposition for a repeal. The House Committee on Patents has had the bill before it, has heard argument, and the Committee, by almost a unanimous vote, has confirmed the validity of the act granting the extension, upon the ground that the legislation under which rights have become vested cannot be repealed so as to affect those rights adversely. The charge that the patent was extended fraudulently and irregularly also falls to the ground, as it was not shown that it could be sustained. Thus ends another phase of the attack on the paper-making industry.

AUSTRIAN paper makers have been working up the East Indian market, and the growth of their trade in that direction is remarkable. The *Papier Industrie* has given us some figures showing the increase of that trade. The exports to India are principally of print and writing papers. The values of the shipments were 230,926 rupees in 1876. In 1877 they were valued at 325,506 rupees, and in 1877 at 494,460 rupees. The statement for 1879 shows a falling off in values to the extent of 50,000 rupees, but this can be accounted for by sharpcompetition in the paper trade and consequent lower prices. The figures as given for 1879 are 444,260 rupees. Much has been said about American paper makers extending their markets, and some effort has been made to that end, but of late, in the face of ample orders at home, there has seemed to be less disposition to retain our hold upon the foreign trade. Austria's example should serve to stimulate American manufacturers, and show them that, now, when the rush of trade is over and they are looking around to place their products, there are markets that can be reached and whose growing wants might as well be supplied from here as from anywhere else.

ITALY is said to be making rapid progress in paper-making. We have not been wont to look upon the Italians as formidable rivals in the manufacture of paper, but no one can foretell what the stimulus of trade can accomplish even with people who have not taken high rank in certain lines of production. We are told that such a stimulus has led to the building of new mills in Italy, and that the output has, in consequence, been excessively increased. In fact, production has exceeded the limits of the home demand, and naturally, as in all cases where the consumers are not equal to the emergency, the paper trade of Italy has received a check so great that the Italian paper-makers have been forced to seek an export trade. This is a change in the situation—quite recent—when the paper mills of Italy could not keep up with the requirements of their home market. An Italian writer says that this export movement has not been profitable, but that it has proved an important outlet and has attained considerable proportions. He also expresses the opinion that an export trade, "as long as its average result is not loss, should remain the chief remedy" for excessive production. This means that the surplus should go into foreign channels and that the mills should not shut down. It serves to show that another country is alive to the importance of pushing and of keeping up its foreign trade connections.

THE SCARCITY OF RAGS IN RUSSIA AND GERMANY.

RUSSIA, as well as Germany, has begun to complain of a scarcity of rags, and the export of stock has become so great and serious an inconvenience that the Russian papers are commenting upon it. The *Papier Zeitung*, of Berlin, has an article speaking of the rag famine, and gives the following statement of Germany's import and export of rags during the first quarter of this year, the figures given standing for hundreds of kilogs, net:

GERMANY'S FOREIGN TRADE IN RAGS, JANUARY 1 TO APRIL 1, 1880.

	Import.	*Export.*
Through Bremen	2,684	4,428
" Hamburg	6,059	34,173
" Lubeck	157	676
Denmark	800	316
Norway	2	...
Sweden	100	820
Russia	27,604	17
Austria	4,396	1,511
Switzerland	1,630	2,253
France	10,272	1,499
Belgium	17,319	4,232
Holland	10,943	1,176
England	603	28,255
United States	49	17,145
Other countries	....	490
Totals	82,758	96,986

It will be seen that the exports exceed the imports by 1,422,800 kilogs. The comparatively large amount drawn from Russia will be noted. The St. Petersburg *Herald* states that during the Turco-Russian war, and since then in consequence of the plague, rag-picking has been very much diminished in Russia; that the many fires have destroyed large quantities of rags, and that as a general thing the wearing of cotton fabrics more and more supersedes the use of linen in Russia, thus causing a growing scarcity of the more desirable class of rags. The *Herald* adds: "While this has been the case, other paper material, such as tow, is in greater request for other purposes, causing oakum to rise from 45 kopecks to 80 kopecks, and all other paper material from 70 kopecks to 1 ruble 40 kopecks. Add to this the low exchange stimulating the export of all sorts of Russian produce, and it is clear that with the scarcity of rags elsewhere, we must inevitably be deprived by exportation of the reduced stocks held by us. In order to counteract this disastrous drain we advocate not the prohibition of all exports, but an export duty twice or three times the present one."

The *Papier Zeitung* observes that this raising of the export duty in Russia would deprive Germany of one of its most important sources of supply now enabling it to square to some extent the seaward rag drain, and that the reimposition of an export duty in Germany, though it has not been even considered during the late session of parliament, is a measure imperatively demanded by the necessities of the case.

Communications.

[Communications are solicited from everyone who has anything of value or interest to impart. Items of news, trade gossip, and personal information will be gladly received. Correspondents are requested to write only on one side of the paper. No responsibility for the opinions of correspondents attaches to this paper. Communications must be sent to reach this office by Wednesday night or Thursday morning, of each week, to insure insertion.]

Turning the Sheet.

To the Editor of The Journal:

Your correspondent, "Old Hand," I suppose lives in the neighborhood of a clay bank, and not being able to dispose of it in any other way to advantage, he thinks that if he could get the sheet turned over on the machine so that the rough side would come in direct contact with the press-roll that a good deal of the clay might be worked up into paper. This is a good idea, so far as economy is concerned, but has it never occurred to your correspondent that by turning the paper over the fine particles alluded to instead of sticking to the press-roll would adhere to the felt, and in this way, besides filling up the felt, would become a total loss. To turn the paper over would be to wash half of the sheet down the tail race, whereas, by our present system of pressing the bottom side of the sheet acting as a filter through which the water is pressed retains all the fine particles or fibres, thus adding weight to the paper and at the same time protecting the felt. There are two sides to every question, and your readers having now both ways before them, can take their choice.

J. D.

More About Paper Sticking to the Roll.

To the Editor of The Journal:

A good deal has lately been said through the columns of THE JOURNAL about paper sticking to the press-roll. It is asserted, I see by some, that putting clay in the stock is one reason for the paper sticking. I am not one of those who believe any such doctrine. I have pondered over this matter for years, and I am now prepared to say, that putting clay in the engine, if the stock is strong enough to bear it, will prevent paper from sticking; or, in other words, the paper will be less likely to stick to the roll with clay than without it—I mean fuller's earth in common papers. If any one doubts this statement, let him get a handful of clay, mix with a little water in a wash-basin, then put it on the press-roll in front of the doctor. Its influence on the roll is nearly equal to spirits of turpentine.

W. T.

Changes, Removals and New Firms.

W. F. Edwards, publisher of the *Independent*, Alturas, Cal., has sold out.

R. T. Ferguson, bookseller and stationer, Greeley, Col., has sold out.

The Franklin Printing and Stationery Company, New York city, has been dissolved.

Graves & Co., publishers of the *Journal*, Summerside, P. E. I., have dissolved partnership.

T. E. Picotte, publisher of the *Times*, Silver City, Nev., has sold out.

Long & Gray, dealers in soda ash, Pittsburg, Pa., have dissolved partnership.

T. T. Siddall, bookseller, Columbiana, O., has removed to Cambridge, same State.

Max C. Reefer, printer, St. Louis, Mo., has admitted Benno Frankel to partnership under the name and style of M. C. Reefer & Co.

Failures.

Sherman Spencer, printer, St. Louis, Mo., has made an assignment.

J. N. Choynski, bookseller and stationer, San Francisco, Cal., has been advertised to be sold out by the sheriff.

A. W. Stuart, manufacturer of blankbooks, Philadelphia, Pa., has made an assignment to C. B. Doyle.

Chattel Mortgages.

[In the appended list R signifies a renewal of a pre-existing mortgage; b. s., bill of sale; and real, a mortgage on real estate.]

NEW YORK CITY.

Mortgagor.	*Amount.*
Rave & Speth	$1,300
R. Handy	500
H. Lovegrove, b. s.	137
C. E. Wemple & Co.	4,500

NEW YORK STATE.

Norman E. Mack, Buffalo	242

EASTERN STATES.

H. A. Shorey, Boston, Mass.	2,000
Evans & Sleeper, Concord, N. H	1,300

WESTERN STATES.

J. C. W. Bailey, Chicago, Ill.	775
Ingersoll Bros., Chicago, Ill.	600
Carl G. Jahn (et ux.), Cincinnati, Ohio	2,526
J. S. Mansfield, Tucson, Ari., Real	3,000
John New & Son, Indianapolis, Ind.	3,000
C. F. Roderus, Terre Haute, Ind., Real	700
H. Brannon, Battle Creek, Ia, b. s	300
S. D. Cook, of Graham & Cook, Indianola, Ia.	2,300
C. H. Cott, of Cott & Hahn, Columbus, Ohio	1,000
Chas. H. Darlington, Muscoda, Wis.	281

Fires.

Lewis & Griffith, publishers, Fayette, O., have been burned out.

The establishment of B. H. Tyrrel, printer, New York city, has been damaged by fire.

F. L. Bensinger, bookseller and stationer, Edenburg, Pa., has been burned out.

Daniel Beckley, paper manufacturer, Beckleyville, Md., has been burned out. Loss $30,000.

Thos. Nixon's paper bag factory, at Dayton, Ohio, together with all the stock, was destroyed by fire on May 20. It is expected to be running again soon.

A fire broke out on Tuesday night, about 11.30 o'clock, in the front basement of the building occupied by the Berlin & Jones Envelope Company, on William street, this city, and before it could be extinguished the stock of paper stored there was damaged to the extent of about $7,000, which is fully covered by insurance. It is considered fortunate, from the location of the fire, that the whole manufactory and its contents were not entirely destroyed, occurring as it did at so late an hour in the night. Its origin is entirely unknown.

Personals.

W. B. Bitting, of the Scott Paper Company, of Philadelphia, is said to have been doing well in taking orders in Pittsburg.

Archer Tevis has severed his connection with the Nescochague Manufacturing Company, and has associated himself with J. G. Ditman & Co., of Philadelphia.

In Town.

C. S. Wheelwright, Providence, R. I.; R. M. Fairfield, Holyoke, Mass.; O. Woodworth, New London, Conn.; De Witt S. Smith, Lee, Mass.; W. Campbell, Milburn, N. J.; Arthur Crane, Westfield, Mass.; Charles Fairchild, Boston, Mass.

Obituary.

JAMES BARBER.

The Toronto *Mail* of May 20 says: "Yesterday James Barber, Sr., of the firm of Barber Brothers, paper makers, died at his residence, Georgetown. He was a native of the county of Antrim, and came with the rest of the family to Canada in 1822. Mr. Barber started his first paper mill in Georgetown in 1854, and the second in 1858, since which time large additions have been made. The deceased was the senior coroner of the county of Halton, and has been a member of the township and village school boards, and also the village council. He has always been of a retiring disposition, taking little or no part in political conventions or meetings of a like character. There is no name, however, which stands higher for commercial integrity, social or moral worth, in the county of Halton, than that of James Barber. In his death, the York Pioneers lose one of their number. He leaves a family of three sons and three daughters. Two of the sons, Joseph and John, have been superintending the paper mill. James, Jr., is in the firm of Barber & Ellis, of this city."

JOHN MURPHY.

John Murphy, the veteran Catholic publisher and bookseller, died at the Carrollton Hotel, Baltimore, on Thursday, May 27, of paralysis of the heart, in the sixty-ninth year of his age. Mr. Murphy was born in Ireland, but came to this country when but ten years of age and settled in Newcastle, Del. After receiving a common school education at the age of sixteen he went to Philadelphia and learned the printing business. Upon attaining his majority he went to Baltimore and worked as a journeyman printer until 1835, when he assumed the superintendence of a job printing establishment. In 1837 he formed a partnership with William Spalding, and they conducted the printing business together until 1839, when the firm was dissolved and the business continued by Mr. Murphy, who then combined with it the publishing and stationery business. His special publications were standard Catholic books, including the "Translation of the Definition of the Dogma of the Immaculate Conception," for which he was honored with a gold medal from the Pope. He also published for a number of years the *United States Catholic Magazine*, which was edited by Rev. C. J. White, D. D., and Rev. M. J. Spalding, afterwards Archbishop of Baltimore. In 1849 he published the writings of Bishop England, of Charleston, S. C. "The Proceedings of the Plenary Council of Baltimore," which he published in 1866, were executed in such superior style that the Pope Pius IX., to whom had been sent a copy, conferred on Mr. Murphy, with his blessing, the honorary title of "Printer to the Pope." Among his many other publications were "Tyler's Life of Chief Justice Taney," "Mason's Life of General R. E. Lee," "Fredet's Ancient and Modern History," "Lingood's England," "The Ritual of Romanism," a work ordered by the Tenth Provincial Council of Baltimore, "St. Vincent's Manual" and numerous other religious and secular works. One of the last works he published was "The Faith of Our Fathers," of which Archbishop James Gibbons was the author. In 1852 he married Miss Margaret O'Donoghue, of Georgetown, D. C., who died in 1869, leaving him several children.

M. V. Morgan, stationer, &c., Philadelphia, Pa., is dead.

Samuel Heywood, of the firm of Heywood & Co., stationers, &c., Philadelphia, Pa., is dead.

Straw Board Manufacturers' Association.

The regular annual meeting of the Straw Board Manufacturers' Association has been called for June 16, as will be seen by the subjoined circular.

OFFICE OF THE STRAW BOARD MANUFACTURERS' ASSOCIATION, LIMA, OHIO, May 31, 1880.

The regular annual meeting of the Straw Board Manufacturers' Association will be held at the Fort William Henry Hotel, Lake George, N. Y., at 10 o'clock, A. M., Wednesday, June 16, 1880.

The Dealers, as an organization, will also meet at the same time and place, and it is especially understood and expected that all attending this convention will bring with them their families. Special and very reasonable arrangements have been made with the proprietors of this elegant hotel for the comfort and pleasure of both ladies and gentlemen, and I hope none will fail to avail themselves of the opportunity of visiting this beautiful watering place. Besides, this is, in my opinion, to be the most important meeting of the Straw Board Association since the first one, and every manufacturer of straw board should make it his special business to be on hand promptly. Please fill out and return at once inclosed blank, that I may report to the hotel the number to provide for. Below I give copy of letter received from the hotel managers, which speaks for itself. Respectfully,

B. C. FAUROT, Treasurer.

FORT WILLIAM HENRY HOTEL, LAKE GEORGE, May 24, 1880.

B. C. Faurot, Esq.

DEAR SIR—Your favor duly received. We will take your party at two dollars and a half ($2.50) per day, each person.

You can reach Lake George by N. Y. Central R. R., getting your tickets direct to the hotel, or by way of Niagara Falls, Ogdensburg, Plattsburg, and then by steamer to the hotel. We shall be pleased to have your party, and can give you all good rooms, as it will be just in advance of our regular boarders. Please advise us. Respectfully, T. ROESSLE & SON.

Avoidance of Vibration with Machinery.

W. H. Delano, in a paper read before the British Institution of Civil Engineers, spoke of the use of asphalt for the foundation of machinery, notably for those running at high speeds, the asphalt having the valuable quality of absorbing vibration. This was instanced in the case of a Carr disintegrator, which being mounted in a pit lined with bituminous concrete, was worked at 500 revolutions per minute without sensible tremor, whereas with the former wooden mountings on an ordinary con-

crete base, the vibration was excessive and extended over a radius of 25 yards. In the Paris Exhibition of 1878 there was shown a block of bituminous concrete, weighing 46 tons, forming the foundation of a Carr disintegrator used as a flour mill, and making 1,400 revolutions a minute, a speed which would have been impracticable on an ordinary foundation. Extensive applications of the material for this purpose are made in France, especially in connection with steam engines and steam hammers.

Harrison Loring, Boston, claims to manufacture an absolutely safe rotary boiler, and the only safe rotary bleaching boiler in use. For the production of chemically prepared wood pulp it has been found extremely difficult to make a boiler that would remain absolutely tight for any considerable length of time. Mr. Loring says he has overcome this difficulty by adopting modes of construction far in advance of other methods for producing first-class boiler work. The common steam boilers built by him are said to have proved more durable and safer than those of any other manufacturer in the United States who has been in business the same length of time. Steam boilers, now in good condition, that have been in constant use 28 years, can still be seen in use in Boston; and, it is asserted, that not one of the many boilers made by Mr. Loring has ever exploded, or given out, to cause injury to a single person or to one dollar's worth of property, during the 28 years. Persons in want of rag, rotary, wood pulp, or steam boilers, will, on application to him receive prompt attention.

SPECIAL NOTICES.

[*Insertions under this heading will be charged 50 cents a line. Payment invariably in advance.*]

☞ *SIXTH EDITION NOW READY.*

—:o:—

Lockwood's Directory of the Paper Trade.

LOCKWOOD'S DIRECTORY is the only STANDARD authority of the kind, and is constantly consulted by the Trade in all parts of the country. Price, $2.00.

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Wholesale Dealer in Cotton and Woolen Rags.
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JOHN L. TAYLOR,
Importer of Rags, Waste Papers and Jute Stocks.
All grades on hand and to arrive at lowest prices.
No 60 DUANE ST., NEW YORK.

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL,
FRIDAY, June 4, 1880.

THE MONEY MARKET.—The money market shows an increasing supply of loanable funds, and rates favor borrowers where the collateral is satisfactory. The demand for commercial paper is comparatively light everywhere, and the indications are favorable for a plethora of money seeking investment during the summer. The rates for call loans are 2@4½ per cent., while the discount rates of prime commercial paper are down to 4½@5½ per cent.

Government bonds continue firm, except the fives and sixes, which are lower. The fours and four and a halfs are at the highest point. The advance in the price of the low-interest bonds is due to the Secretary's order to Mr. Hillhouse to buy low-interest bonds as well as high, the price of the latter having been raised above a profitable rate. The market at the close was quiet but very firm, and prices advanced ⅛ to ¼ per cent. on the previous day's quotations.

The stock market has been bearish in tone, but if the public are to give credence to the prognostications of the "knowing ones," there is something better in store for the "bulls." At the close it seems reasonable to believe that the prolonged bear attack has about reached its culmination, and that the foundations are being laid for another upward movement. Several prominent bears have covered during the past few days, but the outstanding short interest is believed to be still quite considerable.

Railroad bonds were active and somewhat irregular, but in the main firm and higher.

The Sterling Exchange market continues quiet and steady, without any material change in the nominal quotations.

The posted rates at the close were: Sterling, 60 days, actual, $4.86@4.86¼; sterling, sight, actual, $4.88¾@4.89¼; cable transfers, nominal, $4.89½@4.90; commercial sterling, prime, long, $4.85@4.85½; documentary sterling, 60 days, $4.84¾@4.85; Paris, bankers', 60 days, $5.20@5.20⅝; do., sight, $5.17½@5.18¼; Antwerp, bankers', 60 days, $5.20@5.20⅝; do., sight, $5.17½@5.18¾; Swiss, bankers', 60 days, $5.20@5.20⅝; do., sight, $5.17½@5.18¾; reichsmarks (4), bankers', 60 days, 95@95¼; do., sight, 95½@95¾; guilders, bankers', 60 days, 40⅛@40¼; do., sight, 40¼@40⅜, and Paris dispatches quote exchange on London at 25 fr. 32½c.

THE PAPER TRADE.—Business since our last has been interrupted by the recurrence of a legal holiday, and the paper market generally has continued quiet and uninteresting—nothing unusual at this time of the year. The indications are altogether in favor of a quiet trade during the next two or three months, after which we are likely to have a reasonably prosperous fall season after making all due allowance for the drawbacks of an exciting Presidential campaign, but which ought, nevertheless, to increase the demand for printing paper, and turn a necessary evil to good account. The action taken in the Senate yesterday on the tariff question gives dealers and manufacturers some reason to expect that no change in the tariff is likely to be made at this session of Congress, and imparts confidence to buyers who have been holding off pending the agitation of this subject. There has been a moderate amount of rain in various sections of the country during the past week, particularly in the Middle and New England States, and there is little or no complaint of a lack of water power. In Fine Writings more disposition is shown on the part of dealers to place additional orders at the mills before the closing down, about the latter part of the month, but trade with most of our city houses has not improved. The manufacturers of Book papers still have orders on hand sufficient to keep them moderately engaged for a few weeks to come, yet there is no scarcity of stock in the hands of dealers, some of whom are offering goods at comparatively low figures. There is quite a good business doing in Manilla papers in the aggregate through the frequent renewal of stocks in small lots, and prices rule quite steady, considering the competition in the trade. We hear of a manufacturer of News quoting to a consumer 7¾c. for ordinary News, and asking a dealer 8c. for the same paper, another illustration of the close relations existing between the manufacturer and consumer at the expense of the jobbing dealer. The business in Straw Wrappings and Binders' Boards is very limited, and stocks of the former do not show any decided decrease. Straw Boards continue quiet, but prices are steadily maintained. The annual meeting of the Straw Board Manufacturers' Association is to take place at Lake George on June 16.

JUTE BUTTS.—The arrivals this week were 4,813 bales per Simla all sold to arrive. The arrivals noted in our last were nearly all sold before arrival. The market remains very quiet and very firm. Holders are mostly withdrawing from the market for higher prices. The shipments during May were 5,500 bales. June and July shipments it is supposed will be *nil*. As soon as the June arrivals (and they are nearly all sold to arrive) are disposed of, the supply will be seen to be far behind last year. This gives the strength to the market. We quote 3⅛@3 5-16c. for spot, paper quality, and 3 5-16 to 3⅜c. for paper quality, to arrive. The sales are 2,000 bales paper quality, to arrive, at 3⅛c. We heard of an offer of 2,000 bales, to arrive latter part of February shipment, at 3⅝c., and of a smaller lot of spot, paper quality also, at 3¼c., 60 days.

WOOD PULP.—The mills show more readiness to take new orders than of late, and some are accepting them at a little lower prices. The range of quotations for all qualities remains as last week, at 3¼@3⅜c., with some old contracts yet unfilled at 4c. There is no change in chemical fibre, our previous quotation still being held.

FOREIGN RAGS AND PAPER STOCK.—The market here has undergone no great change since last week, and in the absence of any important transactions, prices are merely nominal. Great difficulty is experienced in securing sufficient storage capacity for the large quantities of stock constantly arriving, and in consequence the rates have, in many instances, more than doubled. The latest advices from the markets abroad confirm our previous reports of easier prices and a gradual weakening. The rumors current last week in regard to reshipments to Europe have not been traced to any foundation in fact, and it is believed they were circulated in the interest of a "bull" movement, and that to do this, in view of the low limit to which the foreign markets have fallen, would result in considerable loss to those engaged in the business. Rejections of stock now coming to hand from abroad are becoming almost a daily occurrence, the purchasers taking advantage of almost any pretext whatever for this purpose. The more general plea is deficiency in quality, while breach of contract in the time of delivery is very often put forth. These are some of the evils resulting from the period of inflated values, now that prices have greatly declined. We heard of a lot of 180 bales C. S. P. F. F., German Cottons, in which a question of this character has arisen between the importers in this city and an Eastern manufacturer, and it shows the great necessity of a committee of experts being selected by the trade to arbitrate on all such matters of difference between its members. Waste Papers are in a little better condition than most other grades of foreign stock, showing less decline; but even these are bringing lower figures. The arrivals were much smaller the past week, aggregating 7,426 bales, which consisted entirely of Paper Stock. We note sales of 12 tons Extra Blue Linens at 4¼c.; 20 tons Light English Prints at 3¼c.; 10 tons English Letters at 3¼c.; and 20 tons No. 1 P. P. Linens on private terms.

DOMESTIC RAGS.—The market generally is quiet and dull. There has been a little improvement in the demand for No. 1 City Whites, but prices are unchanged, the bulk of the transactions reported having been at 4½c., with a few small lots of an extra quality said to have brought 4⅝c. No. 2 City Whites are a little easier, transactions having occurred as low as 2¾c., and 3¼c. is the price generally for a prime quality, but they are freely offered at 3c. A really good City Second can be bought for less money, a packer of established reputation having lowered his price from 2½ to 2¾c. during the past week, finding very few purchasers even at this low limit. An ordinary quality of City Seconds is selling at 2c., and no dealer is holding above 2½c. Southern Mixed Cottons are held at 2⅝c., and some few small sales have occurred at 2½c. We note sales of 75 bales No. 1 Whites at 4½c., 50 bales No. 2 Whites at 3c., and 100 bales City Seconds, ordinary, at 2c.

BAGGING, &c.—This class of jute stock is a little weaker, where any purchasers can be found, although prices are quite nominal. Fair No. 1 German Bagging has been offered during the week at 2⅝c., but a fair sized lot on spot can be bought at 2⅝c. Prime No. 1 Manchester Gunny Bagging for future shipment is generally held at 2¾c., while some importers are asking 3c. Manilla Rope is also lower, Domestic being offered at 3⅝c., and Foreign do. at 3¼c. Sales early in the week are reported of 15 tons No. 1 Manchester Gunny Bagging at 2¾c.; 20 tons Domestic Manilla Rope at 3½c., and 30 tons Jute Rope on private terms.

OLD PAPERS.—These are slower of sale and slightly easier in price. The demand for Folded News and White Shavings has fallen off; for the former in consequence of a lighter call from the Hanging Paper mills, while the Writing mills are ordering less of Shavings, in view of their contemplated closing down the latter part of this month. We note sales of 20 tons Folded News at 2⅝c., and 15 tons do. early in the week at 2½c.; 10 tons No. 1 Hard White Shavings at 4⅞c., and 8 tons Soft White do. at 4¾c. We quote Ordinary Mixed Shavings at 3⅝@3½c.; Solid Book Stock at 3½@3⅝c.; Light Stock at 1¾@2c.; Pure Manillas at 2⅝@2¾c.; Mixed Papers, 1@1½c.; Binders' Boards Cuttings at 1¼@1⅝c.; Straw Chips at 1@1½c., and Commons at 75@80c.

STRAW.—The market is without material change. The demand is active, and with a limited supply, values remain firm. Long Rye is quoted at $1.05@1.15; Short do. at 65@70c., and Oat at 55@60c., all cash. The range of prices at the mills throughout the State is from $11 to $22 per ton.

ROSINS.—There is nothing more than a retail trade doing, and the market generally is steady, although a little firmer for the lower grades. We quote job lots, viz.: D Good Strained at $1.70; E at $1.85; F Good No. 2 at $2.20; G Low No. 1 at $2.45; H No. 1 at $3; I Good No. 1 at $3.15; K Low Pale at $3.40; M Pale at $3.60; N Extra Pale at $4, and W at $4.25.

CHEMICALS.—Trade continues to be of a moderate character and the market is very flat, with a weaker feeling to prices for most descriptions, some articles of paper-making chemicals being offered below our figures of last week. Considerable stock is being stored, as manufacturers are not willing to buy unless at quotations which holders will not accept. Sales have been as follows: 400 cks. Bleaching Powders at 1⅞@1¾c.; 300 tons Soda Ash at 1¼@1⅝c.; 300 drums Caustic Soda, 60 per cent., at 3.90c.; 150 tons Sal Soda at 1.05c.; 250 barrels Lump Alum (Ammonia) at 2c.; 200 barrels Ground Alum (Ammonia), at 2½c.; 100 barrels Ground Potash Alum at 2¼c.; 100 barrels Lump Potash Alum at 2c.; 50 cases Concentrated Alum, "N. C. F.," at 2⅝c.; 300 barrels Pearl do. at 2⅝@2¼c.; 500 barrels Natrona Porous Alum at 2⅝@2¾c.; 50 tons Aluminous Cake at 1.60c.; 10 cases Ultramarine at 25@30c.; 15 cks. yellow Prussiate Potash at 26½c.; 10 cks. Bichromate do. at 13¾c.; 20 cks. Antichlorine 3½c.; 10 cks. Orange Mineral at 9½c.; 200 barrels Venetian Red at 1¾c.; 10 cks. White Sugar of Lead at 14¼c.; 15 cks. Brown do. at 9½c.; 300 barrels Corn Starch at 3½c.; 100 bbls. Potato do. at 4½c., and 1,000 bxs. Extract Logwood at 9¼c.

CHINA CLAY, &c.—English China Clay is in very limited request at former prices. Stocks present and prospective are large. Southern is rather quiet, and prices favor buyers. We note sales of 20 tons English China Clay at $16.50 per ton, and 30 tons Southern do. at $12 per ton. Fibrous Mineral Pulp is quoted as before at $20 @30 per ton, as to quality.

COAL.—There is little new to report in regard to the condition of the Anthracite Coal trade, business moving along quietly. Saward's *Coal Trade Journal* says: "Freights from tide-water continue favorable to the buyer of coal, and just so soon as there is a settlement down to the fact that the companies are bound to keep the output well in hand, we suppose there will be more buying of coal for future use. Bituminous Coal without any particular change in price; some of the operators claim that they are making sales above our recent quotations. There is to be no change in the rates of toll over the Baltimore and Ohio road. The canal is carrying nearly as much per week as the railroad. The increased business of the Cumberland region foots up some 230,000 tons. There is no advance in the price of coal at tide-water with the opening of the month of June, but a change is possible about the middle of the month, as we are informed, with a good solid advance on July first. There is an advance of 15c. per ton on Stove Coal for what is known as Philadelphia harbor deliveries, and the committees of the Lehigh and Schuylkill Coal Exchange at their meeting held at Philadelphia decided to increase the price of Stove and Small Stove Coal 15c. per ton for line trade and city deliveries during the month of June." Quotations of Lehigh Coal at New York shipping points are: Lump, $5; Egg, $4.25; Stove, $4.25, and Chestnut, $4. Lackawanna is $3.90 for Lump, $4 for Egg, $4.25, for Stove, and $4. for Chestnut.

PRICES CURRENT.

NEW YORK MARKET.

Paper Market.

DEALERS' SELLING PRICES.

Ledger and Record	$0.19 @	$0.24
Flat Caps, Superfines	18 @	21
Flat Caps, Fines	17 @	19
Flat Caps, engine-sized	14 @	16
Blotting, American	15 @	23
Blotting, English	21 @	25
Book, super-sized and calendered	11 @	12
Book, super-sized and tinted	11 @	12
Book, extra machine finish, low grade	10½@	11¼
Book, extra machine finish, tinted	10½@	11¼
Book, No. 1, Shavings & Imperfections	9½@	10½
Book, No. 2, Shavings & Imperfections	9½@	10
News, all rag, No. 1	9½@	10
News, rag and wood	8½@	9
News, straw	8½@	9
Hanging, Superfine, No. 1	11 @	12
Hanging, Superfine, No. 2	9 @	10
Hanging, Superfine, No. 3	7½@	8½
Hanging, Machine Satin, No. 1	7 @	7½
Hanging, White Blank, No. 2	6 @	6½
Hanging, White Blank, No. 3	5½@	6
Hanging, Curtain	4 @	4½
Hanging, Buff	5 @	—
Hanging, Brown	3¾@	4½
Colored Papers, Double Mediums	10 @	11
Colored Papers, Glazed Mediums	11 @	12
Colored Papers, Tobacco	9½@	10½
Colored Papers, Tissues, 20 × 30, ℔ ream	1.50 @	—
Tissues, Black, 20 × 30, ℔ ream	1.45 @	1.60
White Tissue, 20 × 30, ℔ ream	1.25 @	1.35
White Tissue, 24 × 36, ℔ ream	1.75 @	2.00
Manillas, Flour-sack, cream	12½@	14
Manillas, Flour-sack, drab	12½@	13
Manillas, Rope, unbleached	12 @	14
Manillas, No. 1, light weight	11½@	12½
Manillas, No. 1, heavy weight	9½@	10½
Manillas, No. 2	7½@	8½
Manillas, Bogus	4 @	6
Tissue Manillas, full count, weight and size, 11 × 15, other sizes in proportion	26 @	28
Hardware, light colored	24 @	16
Hardware, No. 1, glazed, tarred	8½@	9½
Hardware, No. 1 glazed	7 @	7½
Binder's Boards, ℔ ton	55.00 @	85.00
Straw Boards, air-dried, No. 1, ℔ ton	60.00 @	70.00
Straw Boards, steam-dried, No. 1, ℔ ton	70.00 @	—
Straw Boards, steam-dried, No. 2, ℔ ton	67.50 @	—
Straw Boards, steam-dried, No. 3, State, ℔ ton	65.00 @	—
Straw Boards, air-dried, Penn, ℔ ton	62.50 @	65.00
Straw Boards, air-dried, State, ℔ ton	65.00 @	67.50
Straw Wrapping, basis, 15 × 20, 15½ ℔, 20 sheets—		
36 × 40, from 38 lbs. to 52 lbs ℔ r'm.	1.50 @	1.75
30 × 40, from 30 lbs. to 34 lbs. ℔ r'm.	1.25 @	—
24 × 36, from 24 lbs. to 26 lbs. ℔ r'm.	90 @	—
22 × 32, from 24 lbs. to 26 lbs. ℔ r'm.	85 @	—
20 × 30, from 14 lbs. to 31 lbs. ℔ r'm.	60 @	1.00
16 × 22, from 12 lbs. to 13 lbs. ℔ r'm.	45 @	—
15 × 24	40 @	42
18 × 28	55 @	—
15 × 20, from 7 lbs. to 15½ lbs. ℔ r'm.	30 @	50
14 × 18	30 @	—
12 × 16	21 @	—
11 × 15	18 @	—
Straw Wrapping, ℔ lb. heavy weight	3½@	—
Straw Wrapping, ℔ lb. light weight	3 @	3¼
Tea Papers, 16-sheet quires—		
12 × 18	45 @	—
14 × 20	50 @	—

Woolen Rags.

Comforter Stock	21 @	23
White Woolens	22 @	23
Blue Grey Stockings	20 @	22
White Stockings	25 @	26
Blue Flannels	20 @	21
Reds, old	22 @	—
Reds, new Shirt Clippings	30 @	32
Mixed Softs, free of Carpets	17½@	18
Seamed Cloth	14 @	14½
Skirted Cloth	11 @	11½
Light Skirted Cloth	11½@	12
New Dark Clips	14 @	15
New Light Clips	19 @	21
New Black Clips	23 @	—
New Blue Clips	24 @	—
New Felts	4 @	5
New Fancy Shirt Cuttings	22 @	24
New Fancy Linsey Cuttings	8 @	—
New Satinets, clean stock	4 @	4½
Satinets	1½@	2
Seams	3½@	3¾
Delaines, stripped for extract	4 @	—
Black Shoe Lastings	4 @	5
Blankets, Woolen	5½@	6
Wool Carpets	13 @	14
Mixed Carpets	4 @	4½
White Linseys	4 @	4½
Mixed Linseys	2½@	3

Rags, Rope and Bagging.

White Shirt Cuttings, No. 1	6 @	6¼
White Shirt Cuttings, No. 2	5 @	5¼
Mill Assorted Whites	6 @	6¼
Unbleached Muslins	5¾@	6
City Whites, No. 1	4½@	4¾
New Canton Flannels	6 @	6¼
New Cotton Strips, light	6¼@	6½
New Cotton Strips, dark	4¼@	4½
No. 2, Whites	3 @	3¼
Cotton Canvas	5 @	5¼
Linen Canvas	4¾@	5
Country White Rags	4½@	4¾
Country Mixed	2½@	2¾
Seconds (City)	2½@	2¾
Colors, per 100 lb	90 @	1.00
Manilla Rope	3¾@	4
Manilla Rope, tarred	2¾@	3
Gunny Bagging, No. 1	3½@	3¼
Gunny Bagging, No. 2	2 @	2¼
Kentucky Bagging	4¾@	4½
Burlap Bagging	3¼@	—
Tar Shakings	2½@	2¾
Hemp Twine Stock	4¼@	4½
Jute Waste	1¾@	2¼

Shavings and Old Paper.

White Collar Cuttings, muslin lined	5½@	5¾
White Envelope Cuttings	5 @	5¼
Hard White Shavings, No. 1	5¼@	5⅜
Soft White Shavings, No. 1	5 @	—
White Shavings, No. 2	3¼@	—
Mixed Shavings, part white	3¾@	4
Ledger and Writing	3½@	3¾
Solid Stock	3¾@	4
Book Stock, No. 1, light	2 @	2¼
Old Newspapers	2¾@	3
Pure Manillas	2¾@	3
Bogus Manillas and Hardwares	1 @	1¼
Commons	7/8@	1
Binder's Board Cuttings	1¼@	1½
Straw Board Cuttings	1 @	1⅛

English Rags, &c.

New Cuttings, cotton	5½@	6
Essex Fines	5 @	5¼
London Fines, cotton	5¼@	5⅜
Outshots, cotton	5 @	5¼
Seconds	3¾@	4
Seconds Extra	4¼@	4¾
Thirds	2¾@	3
New Print Tabs	4½@	4⅝
Checks and Blues	3½@	3¾
Light Prints	3¾@	3¾
Light Fustians	3¾@	4
Dark Fustians	3¾@	3¾
Black Calicoes	3¾@	3¾
First Canvas Linen	4¾@	5
Second Canvas Linen	3¾@	4
Black Bagging	5 @	—
Gunny Bagging, No. 1	3⅛@	3¼
Gunny Bagging, No. 2	2¼@	2⅜
Mixed Bagging	2 @	—
Burlaps Bagging, No. 1	3⅞@	3¼
Rope, Manilla	3⅜@	3¾
Rope, Manilla, tarred	2¾@	2¾
Jute Ropes	2¾@	3
Jute Threads	3¼@	3½

English Old Papers and Shavings.

Hard Shavings, No. 1	5 @	5¼
Soft Shavings, No. 1	4½@	4¾
White and Colored Shavings, No. 1	3¾@	4
White and Colored Shavings, No. 2	2¾@	—
Cream Shavings	5¼@	5½
Paper-collar Cuttings	4 @	—
Ledgers, Briefs and Letters	4 @	4¼
Newspapers and Pamphlets, extra	2¾@	—
Old Newspapers	2¼@	2½
Broken News and Letters	2¾@	—
New Books, Solid Folios	4¼@	—
Old Blank Books	4¼@	—
Brown Papers	2½@	—
White and Buff Railway Sheets	3 @	3⅛
Railway Tickets	1⅝@	1⅞

Hamburg Rags, &c.

LINENS.

Linen Cuttings	5¾@	6
S P F F	5¼@	5½
S P F	4¾@	4¾
F F	4 @	4¼
L F X	3¼@	3¾
Extra Fine Blue Linen, light color	4¾@	5
L F B	4¼@	4¾
Gunny Bagging, No. 1	2¾@	3
Burlap Bagging, No. 1	2¾@	3

COTTONS.

Shirt Cuttings	5¼@	5½
C S P F F	4¾@	5
C S P F	3¼@	3⅝
F R	3¾@	4
C F X	3 @	3¼
Extra Fine Blue Cotton	4 @	4¼
C F B	3 @	3½
Cotton Canvas	4½@	4¾

Rope.

T R (tarred)	2¾@	2⅞
M R (manilla)	3¼@	3½
P T R —	4½@	4⅝

Old Papers.

Old Book Paper	3¼@	3½
Old Printed Books	3¼@	3½
Imperfections	3½@	3¾
White Shavings	4 @	4¼
Colored Papers	2 @	2¼
Writing Papers	4 @	4¼

Leghorn and Genoa Rags.

P P, No. 1 Linens	5¾@	—
S S, No. 2 Linens	5 @	—
T T, No. 3 Linens	4½@	—
P, No. 1 Cottons	5 @	5½
S, No. 2, Cottons	4 @	—
T, No. 3, Cottons	3 @	—
R R, linen stripes	4½@	—
R, ordinary stripes	3 @	—
R C	3¾@	—
C B	3 @	—
C S	2¾@	—
C C	2¼@	—
Q	2½@	—

Alexandria Rags.

Whites	3½@	3⅝
Blues	3 @	3¼
Colors	2¾@	2⅞

Memel Rags.

S P F F	5 @	5⅛
S P F	4¾@	4⅞
F F	3¾@	4⅛
F G	4¼@	4⅜
L F B	4 @	4⅛

Trieste Rags.

S P F	5 @	5⅛
S F F	4¾@	4⅞
S F X	4 @	4¼
S F B	3½@	3¾

Konigsberg Rags.

S P F F	5¾@	6
S P F	4¾@	4¾
F F	4¼@	4½
L F B	4¼@	4¾

Japanese Rags.

Whites, ordinary	4 @	—
Blues	3¾@	3½
Colors	3½@	3¾
Lime Japans	2 @	2½
Extra grades from ¼@½c. higher		

Chemicals, Coloring Materials, &c.

Alum, lump	2 @	—
Alum, ground	2¾@	—
Alum, pearl	3¾@	3½
Alum, porous	3¾@	3¾
Alum, concentrated	2¾@	—
Alum, potash	2½@	—
Aluminous Cake, Pochin's Patent	1½@	—
Aluminous Cake, "Elephant,"	1.60 @	—
Anti-Chlorine	3 @	3½
Bi-Chromate Potash, Scotch	13½@	—
Bi-Chromate Potash, American	13½@	—
Bleaching Powders	1¾@	1⅞
Caustic Soda, 70 per cent.	3¾@	—
Clay, China, English, per ton	16.00 @	17.50
Clay, China, English, to arrive, per ton	16.00 @	17.50
Clay, South Carolina, per ton	12.00 @	—
Clay, Terra Alba English per ton	25.00 @	30.00
Clay, Terra Alba, American, per ton	10.50 @	11.50
Corn Starch	3½@	—
Copperas, American	1¼@	—
Extract Logwood	9¼@	—
Mineral Fibrous Pulp	20.00 @	—
N. Y. Lubricating Co.'s Comp'd, ℔ lb.	10 @	—
Potato Starch	4½@	—
Prussian Blue, dry	30 @	50
Prussiate Potash, American	26½@	—
Orange Mineral	9½@	—
Rosins, good strained, per bbl	1.70 @	—
Rosins, good, No. 2, per bbl	1.85 @	—
Rosins, low, No. 1, per bbl	2.15 @	—
Rosins, No. 1, per bbl	2.65 @	—
Rosins, good, No. 1, per bbl	3.00 @	—
Rosins, pale, per bbl	3.60 @	—
Rosins, extra pale, per bbl	4.25 @	—
Sal Soda	1.05 @	—
Soda Ash, caustic	1¼@	1.65
Soda Ash, carbonated	2 @	2¼
Soda Ash, refined	2 @	—
Soluble Blue	60 @	75
Spanish Brown, dry	1 @	1
Sugar Lead, white	14½@	—
Sugar Lead, brown	9½@	—
Sulphuric Acid, 60 degrees	1¾@	—
Sulphuric Acid, 66 degrees	2 @	2¼
Ultramarine, blue	25 @	30
Venetian Red, American	1¾@	—
Venetian Red, "Cookson's," Eng.	1¾@	—
Vitriol, blue	7½@	8¾
Yellow Ochre	1¾@	1¾

BOSTON MARKET.

Our market is not very animated. Stocks are generally fully equal to the demand, with prices not remarkably firm.

Paper Stock.

Mill Assorted Whites	5½@	5¾
Cotton Canvas	5 @	5¼
Cotton Canvas, No. 2	3½@	3⅝
Gunny Bagging	3 @	3½
Gunny Bagging, No. 2	2 @	2¼
Shivey Bagging	2½@	2¾
Kentucky Bagging	5 @	5¼
Waste Woolens	½@	1
Jute Butts	3¼@	3½
White Collar Cuttings	4¾@	5
White Envelope Cuttings	5 @	5¼
Hard White Shavings, No. 1	5 @	5¼
Soft White Shavings, No. 1	4¾@	5
White Shavings, No. 2	3 @	3¼
Mixed Shavings (¾ white)	3 @	3¼
Imperfections	2 @	2½
Book Stocks	3¾@	4
Light Prints	3¾@	3¾
Manilla Envelope Cuttings, new	3 @	3¾
Manilla Papers, old	2½@	3¾
Hardware and Manillas	½@	1¼
Straw Board Cuttings	½@	¾
Linen Canvas	4¾@	5
Linen Canvas, No. 2	3¼@	3½
White Shirt Cuttings	6¼@	6¾
Country White Rags	5¼@	5½
Country Mixed Rags	2¼@	2¾
City Whites, No. 2	3½@	4
Seconds, Country	3¾@	4
Colors	3 @	3½
Manilla Rope	3½@	3¾
Binders' or Tar Board Cuttings	1 @	1¼
Common Papers	½@	1
Oakum Junk	5½@	5¾
Hemp Rope, Tarred	3 @	3¼

Leghorn Rags.

P P No. 1 Linens	5¼@	5½
S S, No. 2 Linens	4¼@	4½
T T, No. 3 Linens	4 @	4¼
P, No. 1 Cottons	4½@	4⅝
S, No. 2 Cottons	3¾@	4
T, No. 3 Cottons	3 @	3¼

Alexandria Rags.

Whites	3 @	3½
Blues	3 @	3½
Colors	2¾@	2⅞

Smyrna Rags.

Whites	3½@	3½
Blues	3½@	3⅝
Reds	3 @	3½
Mixed	— @	—

Constantinople Rags.

Whites	3 @	3½
Blues	3½@	3¾
Reds	2¾@	3
Mixed	— @	—

New Papers.

Superfine Book	11 @	13
Fine Book	10 @	11
News, Rag and Wood	8½@	9
News, Straw	8½@	9
News, No. 1, all rag	9½@	10
Manilla, Cream, No. 1 Rope	11½@	12½
Manilla, No. 2 Rope	10½@	11½
Manilla No. 1 Bagging	9½@	11
Manilla, No. 2 Bagging	8½@	9½
Bogus Manilla	6½@	7½
Straw Wrapping	3 @	3½
Hardware, No. 1	7½@	—
Hardware, No. 2	— @	6
Hardware, glazed	8½@	—
Straw Boards, air-dried, ℔ ton	60.00 @	65.00
Straw Boards, steam-dried, ℔ ton	65.00 @	70.00
Binders' Boards, ℔ ton	60.00 @	65.00
Leather Board, Common, ℔ lb.	4½@	6½
Leather Board, counter	8 @	10
Leather Board, extra	10 @	14
Tar Boards ℔ ton	130.00 @	130.00

Chemicals.

Aluminous Cake, currency	1½@	1⅝
Alum, English lump, ℔ lb.	2½@	2¾
Alum, English ground	2¾@	3
Alum, American ground	3¼@	3½
Alum, American lump	2 @	2½
Alum, Potash	2½@	2⅝
Anti-Chlorine	4 @	4½
Bi-Chromate Potash, Scotch	15½@	16
Bi-Chromate Potash, American	15½@	16
Bleaching Powders	1¾@	1¾
Blackley Blue	4.50 @	5.00
Caustic Soda, 60 ℔ cent.	4 @	4½
Caustic Soda, 70 ℔ cent. (for 60 ℔ cent.)	3½@	3¾
Clay, English, ℔ ton	16.00 @	20.00
Clay, English, extra	21.00 @	25.00
Clay, American, ℔ ton	13.00 @	15 50
Copperas, American, ℔ lb.	1½@	1¼
Extract Logwood	10 @	12
Lime, common, ℔ bbl	1.00 @	1.75
Prussian Blue, ℔ lb.	62 @	65

Prussiate Potash, American	27 @	28
Rosin, common strained ₩ lb.	1½@	2
Rosin, No. 2	2 @	2½
Rosin, No. 1	3 @	4
Rosin, pale	5.00 @	6.00
Rosin, extra pale	6.00 @	6.50
Sal Soda, Eng. ₩ lb	1¼@	1⅝
Sal Soda, American	1.35 @	1.40
Soda Ash	1¾@	2
Soluble Blue	— @	75
Sugar Lead, White	14 @	15
Sugar Lead, Brown	10½@	11
Sulphuric Acid, 66 degrees	2 @	2¼
Terra Alba ₩ ton	15.00 @	25.00
Ultramarine, ₩ lb	25 @	35
Ultramarine, W. N. G. brand	94 @	95
Venetian Red, ₩ lb	1½@	1¾
Vitriol, Blue	8½@	9
Yellow Ochre	1¼@	1½

PHILADELPHIA MARKET.

Paper Market.

Extra Super-Calend. and Sized Book	12 @	13
Super-Calendered and Sized Book	11 @	12
No. 1 Machine-Finish Book	10 @	11
No. 2 Machine-Finish Book	9½@	10
Rag News	9½@	—
Straw News	8½@	9
Manilla Rope, No. 1	12 @	12½
Manilla Rope, No. 2	10½@	11½
Jute Manilla, No. 1, light weight	10½@	11½
Jute Manilla, No 1, heavy weight	9½@	10½
No. 2 Manilla	8½@	9
Bogus Manilla	7 @	8
Colored, 21×38	10 @	11
Colored, 20×25, super-calendered	12½@	13½
Tissue, white and colored, 20×30, p. rm	1.30 @	1.60
Tissue Manilla, 480 sheets, 11×15	24 @	26
Hardware	5½@	6½

Paper Stock.

White Shirt Cuttings	7 @	—
Unbleached Muslins	6¾@	—
Canton Flannels, Bleached	6½@	—
Canton Flannels, Brown	5 @	—
No. 1 Whites	4¾@	—
No. 2 Whites	3¾@	—
Blues and Thirds	3¼@	—
New Blues	4 @	—
Colors	2¾@	—
Blacks	1½@	—
Overall Cuttings	4¼@	—
No. 1 Cotton Canvas	5 @	—
No. 2 Cotton Canvas	3½@	—
Hard Woolens	¾@	—
White Shavings, Hard	5¼@	—
White Shavings, Soft	5 @	—
Book Stock	¾@	—
Newspapers	2¾@	—
Mixed Shavings	3½@	—
Broken Prints	1½@	—
Manilla Shavings	4 @	—
Manilla, No. 1	¾@	—
Manilla, No. 2	1½@	—
Flour Sacks	3½@	—
Binders' Board Cuttings	1 @	—
Straw Board Cuttings	1 @	—
Common Cuttings	¾@	—
Wadding	3½@	—
Grass Rope	3½@	—
No. 2 Tarred Hemp	2½@	—
Tarred Shakings	2½@	—
Netting	1 @	—
Hemp Twine	4½@	—
Jute Rope	3½@	—
Black Hemp Bagging	4½@	—
Gunny Bagging	3¾@	—
Scrap Bagging	2 @	—
Dyed Bagging	1¼@	—
Cotton Mill Sweepings	3¼@	—

Chemicals, Coloring Materials, &c.

Alum, lump	2½@	2¾
Alum, ground	2¾@	2⅞
Alum, pearl	2½@	—
Alum, porous	2⅝@	2¾
Alum, concentrated	2 @	2¼
Alum, potash	2¼@	—
Aluminous Cake	1⅝@	1¾
Anti Chlorine	3¼@	3½
Bi-Chromate Potash, Scotch	15 @	—
Bi-Chromate Potash, American	15 @	—
Bleaching Powders	1¼@	1½
Caustic Soda, 60 per cent	3⅞@	4⅛
Clay, China, English, per ton	16.00 @	17.50
Clay, China, English, to arrive, per ton	15.50 @	16.00
Clay, South Carolina, per ton	11.00 @	12.00
Clay, Terra Alba, English, per ton	25.00 @	30.00
Clay, Terra Alba, American, per ton	12.00 @	15.00
Corn Starch	3¼@	—
Copperas, American	1 @	1¼
Extract Logwood	9 @	10
Potato Starch	4¼@	5¼
Prussian Blue, dry	30 @	50
Prussiate Potash, American	27 @	—
Orange Mineral	9½@	10½
Rosins, low, No. 2, per bbl	1.75 @	1.90
Rosins, good, No. 2, per bbl	2.00 @	—
Rosins, low, No. 1, per bbl	2.20 @	2.50
Rosins, No. 1, per bbl	2.70 @	2.80
Rosins, good, No. 1, per bbl	3.25 @	3.50
Rosins, pale, per bbl	4.00 @	4.25
Rosins, extra pale, per bbl	4.75 @	5.00
Sal Soda	1¼@	1¼
Soda Ash, caustic	1¾@	2⅛
Soda Ash, carbonated	1¾@	2
Soda Ash, refined	2 @	2¼
Soluble Blue	70 @	85
Spanish Brown, dry	1 @	1¼
Sugar Lead, white	15½@	16½
Sugar Lead, brown	10½@	11
Sulphuric Acid, 60 degrees	1¾@	—
Sulphuric Acid, 66 degrees	2 @	2¼
Talcine Fibre or Mineral Pulp, per ton	24.50 @	26.00
Ultramarine, blue	23 @	28
Venetian Red, American	1¼@	1¾
Venetian Red, "Cookson's," Eng	1¾@	1⅞
Vitriol, blue	8 @	8½
Yellow Ochre	¾@	3½

CHICAGO MARKET.

Paper.

Tileston Plate	21 @	22
Plate	16 @	20
Super-Calendered, white and tinted	13 @	14
Fine Book, white and tinted	13½@	—
No. 2 Book	11½@	—
Colored Glazed Mediums	15 @	—
Rag News, No. 1	11 @	—
Ordinary Rag News	10 @	—
Straw and Wood News	9½@	—
Bleached Manilla, No. 1	11 @	—
Ordinary Manilla	9½@	10
Bogus Manilla	6½@	7
Straw Wrapping	2.15 @	2¼
Flax Hardware Wrapping	3 @	3¼
Tissue Manilla, 24×36, full count	1.00 @	—
Tissue, white, 20×30	1.25 @	—
Tea Papers, 14×20	9 @	10
Tea Papers, 13×18	9 @	10
Tea Papers, 12×16	9 @	10
Straw Boards, air-dried, ₩ ton	55.00 @	60.00
Straw Boards, steam-dried, ₩ ton	55.00 @	—
Wood Pulp Card, middles	7 @	—

Rags and Paper Stock.

	Cents.		Cents.
Whites, N. 1	5½@—	Print Papers	1½@1¾
" No. 2	4 @4½	Manilla Papers	3 @3¼
Prints	3 @—	Common Paper	¾@1
Tarees and Blues	3½@4	White Shavings	3½@4
Manila Rope	3 @3½	Mixed Shavings	3 @3½
Mixed Bagging	2½@—	Pure Book	4 @—
" " No. 1	3 @—	No. 1 Book	3 @3½
Wrapping Stock	¾@8-10	No. 2 "	2½@2¾
Seam Cloth	9½@10	Straw Board	¾@1
New Clips	18 @20		

CINCINNATI MARKET.

Paper Stock.

	Cents.		Cents.
City, No. 1 Whites	4½	Soft Woolens, mixed City	14
Mill Assorted Whites	4½	Common Wool Rags	1.10
White Cotton Canvas, No. 1	5½	White Shavings, No. 1	4
Linen Canvas	—	White Shavings, No. 2	3
White Shirt Cuttings	—	Colored Shavings	2½
Country Whites, No. 1	4½	White Collar Cuttings	5½
Country Whites, No. 2	4	White Envelope Cuttings	4
Country Whites, No. 3	3¼	Manilla Envelope Cuttings, new	2½
Country Blue Rags	3	Manilla Papers, No. 1	2½
Country Mixed Cotton Rags	2½	Manilla Papers, No. 2	2
City Mixed Cotton Rags	2½	Sized Papers	3½
Shoe Cuttings, new	4½	News Papers	1½
Colored Cotton Rags	2½	Flour Sacks	4½
Manilla Rope	3½	Common Papers	80
Hemp Rope	4	Straw Board Cuttings	90
Gunny Bagging	2½	Binders' & Tar Board Cuttings	1
Hard Woolens, old	4½	Mill Bagging, No. 1	2½
Hard Woolens, new	15½	City Gunnies, No. 2	2
Soft Woolens (Mill)	15		

FOREIGN MARKETS.

London Market Report.

LONDON, May 22, 1880.

Our market has been rather quiet this week under the influence of the Whitsun holidays, and very little business has been reported.

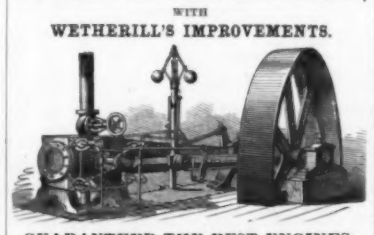
RAGS.—Prices of linens are generally pretty well maintained, transactions being mostly for immediate deliveries. Both buyers and sellers show little inclination to enter into any distant contracts; the former in anticipation of a decline and the latter having no sufficient grounds which would allow of expecting larger supplies for some to come. Stocks are almost bare of the middle and lower qualities, while fine grades are coming in more plentiful. Cotton rags are in favor of buyers.

GUNNY, ROPE, HEMP, BAGGING, &c.—The home trade is just now covering only immediate wants, while exporters are still offering for larger parcels at somewhat reduced rates, but without success.

WASTEPAPERS—Begin to be offered more freely, and prices have partly given way. There are, however, still some large parcels to be delivered on old contracts.

Advertisements.

CORLISS ENGINE BUILDERS,
WITH
WETHERILL'S IMPROVEMENTS.



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WANTED IMMEDIATELY—A FIRST CLASS Finisher, to count and fold. A steady and competent man can get permanent employment and good wages. Address
SAVANNAH PAPER MILLS, Savannah, Ga.

WANTED.—A PERSON HAVING SEVEN years' experience as Foreman in a Paper Mill, desires a similar position. Good references given. Address G. M., Paper Trade Journal Office.

WANTED.—A GERMAN OF MIDDLE AGE, who understands thoroughly the process of making all grades of paper, also the working of wood and straw pulp and boards, wants immediately a position as foreman or assistant manager in some large mill; the best of testimonials can be given. Address G. M., 97, office Paper Trade Journal.

WANTED—BY A GENTLEMAN WHO HAS had some experience in the paper trade, a position with a good house in the paper or paper stock business; is a good salesman, and has a good business training and experience; will accept a moderate compensation until ability is fully proven. Address WILLING, care of Paper Trade Journal.

PAPER MACHINERY FOR SALE.
ONE RAG ENGINE, 28×30.
ONE STUFF PUMP 4 inches.
TWELVE CALENDER ROLLS, 6×70.
FOUR CALENDER ROLLS, 12×70.
TWO SETS PRESS ROLLS, 12×72.
THREE IRON DRYERS (no stands), 28×68.
Also, One Hand Printing Press, One Rotary Board Cutter, One Binder's Shears, One Small Cutting Press, 20-inch knife. Address
CLAREMONT MFG. CO., CLAREMONT, N. H.

FOR SALE—ONE 40-INCH FOURDRINIER Paper Machine. Address BURR BROS., No. 235 North Water Street, Philadelphia, Pa.

FOR SALE.—Two Engines; Cast Iron Tubs, 14½ feet long; Rolls, 36-inch face, 32-inch diameter, two Cylinder Washers in each; Rotary Boiler, 5 feet by 16½ feet, all in good condition. SEYMOUR PAPER CO., Windsor Locks, Conn.

FOR SALE.—PAPER MACHINERY. One stand of Reels for 42-inch machine. Four Engine Roll Spindles, 9½ feet by 6 inches, with stands and lighters complete. Cheap for cash.
Address ADAMS & CO., Chagrin Falls, Ohio.

FOR SALE—FIVE COPPER DRIERS, 28-inch diameter, 73 inch face.
FOUR BRASS PRESS ROLLS, 84-inch face, 14-inch diameter; in perfect order.
TWELVE DANDY ROLLS, 62-inch face, 5 wove and 7 laid.
TWO BOYDEN TURBINE WATER-WHEELS, with iron cases; complete and in good order; one 79½-inch and one 36-inch. They were made by Ames Manufacturing Co., Chicopee Falls, in the best manner, and will be sold low.
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FOR SALE.

Second-hand Tyler Scroll Water-Wheels, one 3 feet, one 4 feet and two 5 feet; also a Fourdrinier Wire Part, for wire 62"×33'3", in complete running order, with vat and screens. Apply to the Geo. W. Wheelwright Paper Co., 83 Devonshire St., Boston, Mass.

FOR SALE.

The Canadian Patent on the Stillwell Bag Machines.

These machines manufacture SATCHEL BOTTOM PAPER FLOUR SACKS direct from the roll of paper, at one operation, at the rate of from 25,000 to 30,000 per day.

Machines can be seen in successful operation at the mill of Taggarts & Davis, Watertown, N. Y. The patent will be sold at a very reasonable price.

Also the patents on same machine for Great Britain and France.
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Iron work for Six Rag Engines and Cylinder Washer, made for 34-inch Bar and Wood Rolls, all new; no bars. Inquire of
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Five Copper Dryers, 28 ins. diameter, 62 ins. face with stands, felt and paper rolls, gears, etc. Also twelve 4-in. Slitters, with shaft.
EAST HARTFORD MFG. CO.,
Burnside, Conn.

FOR SALE.

One 62-inch Cylinder Machine, containing five Copper Driers, 36-inch diameter: New Making Cylinder, 36-inch diameter: Vat and Pulp Dresser; one Stack of Calenders, and one Gavit Cone Cutter. Will be sold cheap. Can be seen standing at Slackwater Paper Mills, Lancaster, Pa. Addres JOHN A. SHOBER, Lancaster, Pa.

FOR SALE.

THE EXETER PAPER MILL, located at Exeter, N. H., about fifty miles from Boston, on the Boston and Maine Railroad. It is operated by water and steam power. The machinery consists in part of one 44-inch Single Cylinder and one 62-inch Double Cylinder Machines; one 55-inch, five 40-inch, and one 27-inch Beating Engines; one 150 horse-power and one 30 horse-power Steam Engines; Tubular Boilers, Rotary Bleach, Cutter, Duster, Drainers, Pumps, and other machinery usually found in a well appointed paper mill. The Mill is running on Manilla Papers, and can be seen in operation at any time. This Mill and all its contents are to be sold at once, either as a whole or in parts to suit, and as the machinery is in good condition, many bargains will be offered. A detailed description of the machinery, &c., mailed on application.
All communications to be addressed to the
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Standard Tissue - Manilla
ATLANTIC. UNION. IMPERIAL. W. C. PAPER. GEM. DEFIANCE. DOMESTIC.
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Valuable Paper Mill
FOR SALE.

The Paper Mill situated at Lawrence, Mass. (formerly known as the Munroe Paper Company's Mill), is offered at private sale.

This Mill is on the Boston and Maine Railroad, with a branch track on the premises, is now in full operation, and will be sold at a large reduction from its real value to close an estate. For facilities for receiving and shipping freight this Mill is believed not to be equaled by any other in the United States.

Water power abundant and unfailing.

For terms and further particulars address,
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The manufacturers also beg leave to recommend their well-known
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in use in the Paper Mills in this country to-day than all other kinds combined.
Perfect satisfaction in all cases, or Pumps returned at our expense.
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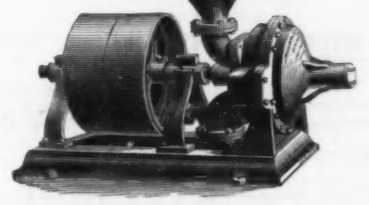

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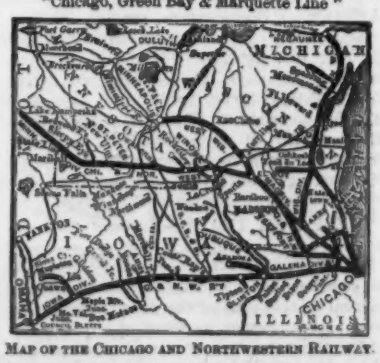

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Tickets over this route are sold by all coupon ticket agents in the United States and Canadas
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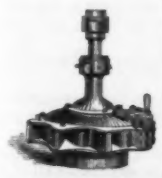

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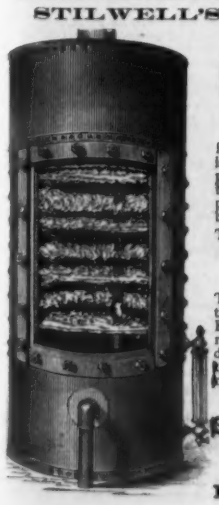

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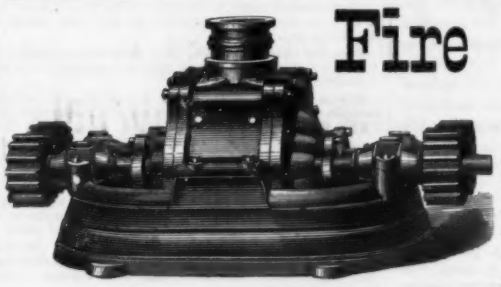

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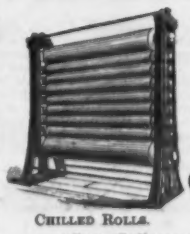

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Fourth—Are you sure ALL the companies in which you hold policies are sound and solvent?

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Should be pleased to send you a Paper Mill Survey, and to hear from you regarding any insurance which you may desire for your mill property, and you can rest assured that it will receive careful attention at our hands. **Please write us before renewing any of your policies.**

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Mechanics.

Motion, Power, and Friction.

Before proceeding to the subjects of motion and power, upon which the science of mechanics is principally founded, a few observations will be made upon friction, that the reader may be enabled to form estimates of the resistance to the motion of his machines, as well as of their strength, and of the various causes, already pointed out, whereby the theory of their motion and equilibrium may be caused to give different results from those obtainable in practice.

A resistance to motion, and consequently loss of power, always takes place when solid substances come in contact with each other. This, it is obvious, must always be the case in the operation of machines. However smooth the surfaces of bodies may ordinarily appear, yet when examined more minutely, they present to view numerous rugged protuberances. By means of the solar microscope, the most delicately polished needle exhibits as rough an appearance as the bark of a tree, viewed by the naked eye. It has been before stated, while treating of crystallization, that the metals and almost every other solid substance not under the influence of vegetable or animal life, are subject to a peculiar orderly arrangement of their component atoms, in the form of cubes, prisms and other figures, all of which have sharp angular corners or edges. Vegetable substances are full of cavities or pores which form the sap vessels. When, therefore, the surfaces of these substances are in contact, they cannot slide or slip over each other, unless the power applied be sufficient to cause these angular points to be broken away or the weight of the body to mount over them. After this has been once effected, a succession of angular protuberances will still remain, and oppose fresh obstacles to the motion of one body over the surface of another. Thus friction has been found to be a uniformly retarding force, and as such must be taken into consideration in all calculations relating to the operation of machinery. There are certain vegetable and animal substances which, from the spherical or other peculiar formation of their component particles, offer little resistance to solid bodies in passing over them, such as vegetable oils, fat, etc. By filling the cavities of solid bodies with these substances, friction becomes materially diminished. The particles of fluid substances are supposed to be perfectly globular, and were it possible to cause the pivots or bearings of machines to rest upon fluids, the resistance from friction would be exceedingly diminished.

From numerous experiments made by Vince, Coulomb and others, it appears that the friction of bodies is not in proportion to the surfaces exposed. A solid body in the form of a common brick has been found to slide over a plane surface with the same degree of friction, whether placed upon its edge or flat side. Euler found the ratio of friction and the force of pressure on plane surfaces to be as 1 to 4—that is, that the retarding power or resistance of friction, where one plane surface of wood passes over another, is equal to about ¼ of the weight, but that after the body is put in motion only one quarter of this friction, equal to ⅛ of the weight, takes place. Fresh tallow diminishes friction one-half on commencing motion, and to a much greater extent after motion is begun. Where the arbors of shafts are well polished, and turn upon brass boxes properly oiled, the friction is diminished to 1-30 or even 1-40 of the pressure of the weight resting upon them. Coulomb found, by means of numerous experiments made upon rolling cylinders, that the resistance from friction on the same cylinder is proportional to the pressure, and that on rolling cylinders formed of the same substance, but of different diameters, the pressure being equal, the friction is inversely as the diameters—that is, upon a cylinder measuring 3 inches diameter, and upon another measuring 6 inches diameter, subjected to the same pressure, the power required to overcome the friction and to roll the 3-inch cylinder would be found to be greater than that required to roll the 6-inch cylinder, in the proportion of 6 to 3. The experiments of the actual loss of power by friction of rolling bodies are few and unsatisfactory. The comparative loss of power that takes place from the friction of sliding and rolling bodies it has been stated is as follows:

	Per Cent.
The friction of a sliding body is equal to a ¼ of the pressure, or	25
That of the revolving body is about	15
That of the rolling body is about	5

Large wheels are found to make the motion of a wagon more easy for a horse. A limit is assigned in practice for the size of carriage wheels, which is, that the axle should not be above the level of the draught, or breast of the horse.

In order to diminish friction it should be adopted as a general rule never to allow two substances of the same specific hardness to revolve one upon the other. The only exception to this rule is cast-steel, which forms both excellent gudgeons, or journals, and pillows to receive them. It has been found that the greater the difference in point of hardness between the metals which come in contact with each other, as journals, gudgeons, and their pillows, the less will be the abrasion from friction. It is for this reason that diamonds, the hardest of gems, are selected by watch-makers for the steps of the pivots of their wheel work. For light lathes, steel arbors are found to run upon leaden pillows with very little abrasion or loss of power from friction. In case, however, of neglect in oiling the parts, the lead soon becomes converted into a yellow oxide. In a cotton mill in Rhode Island, a light shaft, revolving 150 times per minute, has run for seven years upon a piece of thick sheet lead, supported by wood, without wearing away the lead or the journal of the shaft. Lead, however, is an unsuitable material where there is weight or pressure to be sustained. In such cases brass and pewter are commonly used. Of all materials for pillows or bushes, cast-steel seems to have the preference.

A good composition for diminishing friction is the common soapstone or steatite, reduced to powder and mixed with oil. One part of plumbago to three parts of lard forms also a good anti-attrition compound.

It appears, from various experiments, that the loss of power by friction of hard surfaces is in proportion to the weights or pressures of the bodies rather than to the velocity with which they move. By increasing the velocity of revolving shafts, a corresponding increase of friction does not take place. Mr. Roberts, of Manchester, found, by means of a machine contrived with much ingenuity expressly for the purpose of measuring the effect of the resistance of friction in retarding the motion of rolling bodies, that the resistance on an iron rail is the same for all velocities. According to the result of his experiments, a steam carriage on a railroad would meet with no more resistance from friction in traveling a given distance, whether it moved at the rate of 5 or 15 miles per hour. "A carriage may be propelled 20 miles in one hour with the same amount of force which would be necessary to propel it 20 miles in ten hours, provided the resistance of the atmosphere was out of the question. In other words, goods might be conveyed from Manchester to Liverpool on a railroad, with very near the same expenditure of steam, whether they were carried 2 miles or 20 miles an hour. A steam engine which will propel 20 tons at 4 miles an hour, will, with the same expense of coals, propel 10 tons at 8 miles an hour; so that, with the smaller load, it may make a journey to Liverpool and back, in the same time which would be occupied in going thither with the heavier load. There will be the same expenditure of steam in both cases, but in the latter, a saving of half the time, which will frequently be of immense importance."

Hence an interesting comparison has been drawn between the loss of power by friction upon railroads, and by the resistance of water to the passage of boats. The resistance of water to the motion of a boat, it is stated, increases regularly in the ratio of the square of its velocity. This holds in some degree true where roads are composed of loose, sandy soil, which is displaced before the wheels as they progress. The resistance to be overcome upon the ordinary roads in the United States will exceed ten-fold that to be overcome on a railroad. It is not so much the friction of the water upon the sides of a vessel that impedes her motion, as the actual displacing of a volume of water equal in weight to that of the vessel and cargo. Some late authors estimate the resistance of water to be nearly as the medium between the square and cube of the velocity of the body moving through it. Supposing the resistance of water to the motion of a boat to increase as the squares of the velocity, to augment the velocity from 4 to 8 miles per hour would require 4 times the power, and to augment it from 4 to 12 miles per hour would require nine times the power.

The following table by an English author gives an interesting comparative statement of the relative loss of power produced by the friction of the wheels of a carriage upon a railroad, and by the resistance of water to the motion of a canal boat. It has been found that a boat weighing, with its load, 15 tons, and a wagon of the same weight, the one on a canal and the other on a railway, would be impelled at the following rates by the following quantities of power, which are stated both in pounds and horse-powers—reckoning one horse-power equal to 180 pounds:

	Boat on a Canal.		*Wagon on a Railway.*	
	Power in Lbs.	Horse-power.	Power in Lbs.	Horse-power.
2 miles....	33	1-5	100	5/9
4 "	133	3/4	102	5/9
6 "	300	1¾	105	7/9
8 "	533	3	109	2/3
12 "	1,200	7	120	2/3
16 "	2,133	12	137	3/4
20 "	3,325	18	158	1

It will be observed from the above table that it would require 7 horse-powers to impel a steamboat weighing 15 tons at the rate of twelve miles an hour. This gives a load of 2 tons to the horse-power. The engine, if a low-pressure one, with water and coals sufficient for eight hours, would weigh nearly 10 tons, and the vessel would weigh at least 5, so that the whole power of the engine would be expended in impelling itself and the vessel, continuing it at the same rate, and no free power would remain for freight without diminishing its velocity. Indeed, in common steam vessels for passengers, going only eight or nine miles an hour, the vessel and engine may be considered as constituting the whole burden. Fifty passengers, weighing, perhaps, with their baggage, six or eight tons, form but a small portion of the comparative weight of a steamboat of 70 horse-powers, which, with the steam engine, boilers and fuel, must weigh at least 160 or 180 tons.

It thus appears that a power of seventy horses is actually required in many steamboats to transport only eight or ten tons—the ordinary weight of fifty passengers considered as their freight, with the velocity of nine miles per hour. The friction on a railway is so trifling that not one-tenth of this power would be required to produce an equal effect. To attain the velocity of thirteen or fourteen miles per hour, being the rate at which some of the modern American steamboats move through still water, the power of the steam engines is increased to the surprising force of above ten horses for each ton they transport, estimating the weight of the passengers and their luggage as the freight. It is impracticable to construct light boats to sustain advantageously the stress produced by the reciprocating movement of the internal machinery, which usually proves more destructive to the strength of this description of vessels than the violence of the elements which they are destined to encounter.

From what has been premised, it appears that there are two kinds of friction, one of which takes place when the bodies have simply a sliding motion; the other when one or both the bodies move by turning on an axis. The peculiar movement of skates and sledges exhibits an instance of the former motion, and that of the wheels of carriages of the latter. Of all natural solid bodies, ice seems to occasion the least friction. In Russia, ice-boats are propelled by the force of a moderate breeze upon their sails with the surprising velocity of 30 miles per hour.

[To be Continued.]

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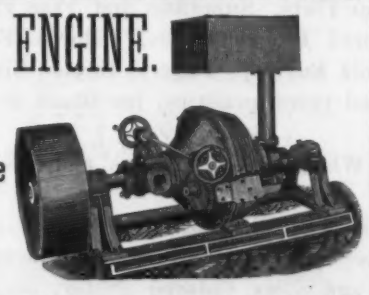

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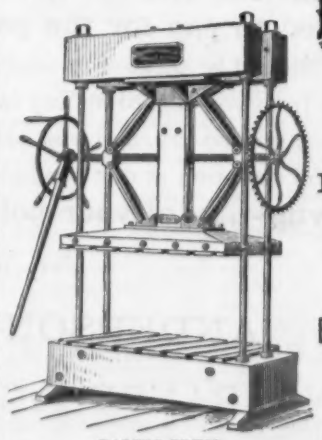

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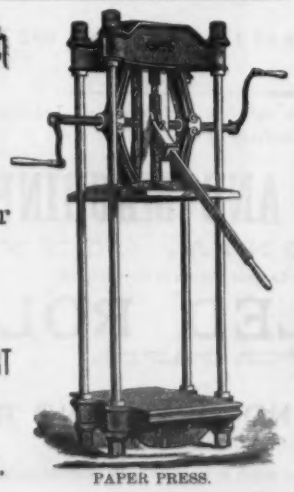

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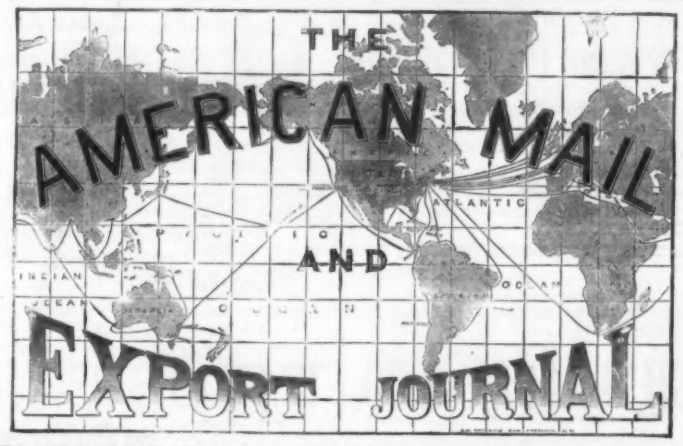

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"The American Mail and Export Journal" is sent regularly to the Export and Shipping Merchants in the cities of New York, Philadelphia, Boston and Baltimore, and to the same class of houses in London, Liverpool, Manchester and Birmingham. The English Export Merchants alone number about 5,000, and ship goods to all parts of the world.

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EXTRACTS FROM NOTICES BY THE FOREIGN PRESS.

La Sifflet, Paris, July 29, 1877.—A magnificent and excellent commercial journal.

London Stationer and F. G. Register, July 5, 1877.—Beautifully printed and otherwise excellently well produced.

Capetown Daily News, August 21, 1877.—A very useful and carefully got up trade circular, published in New York.

Newsvender, London, August 15, 1877.—It deserves to be prosperous if the promise in the first number is maintained.

Evening Star, Dunedin, New Zealand, August 25, 1877.—We think it likely to prove a valuable aid to commercial men.

Japan Gazette, Yokohama, August 27, 1877.—This sample of a new venture gives abundant promise of future excellence

City Press, London, August 18, 1877.—The articles are well written, and the information on trade matters full and interesting.

Sunderland (Eng.) Daily Times, August 20, 1877.—The idea is a grand one, and the style in which the new venture is got up ought to go far to render it a success.

Paper Makers' Monthly Journal, London, July 31, 1877.—Excellently arranged, admirably printed on fine paper, and illustrated, this new venture looks like succeeding.

Ripponshire Advocate, Beaufort, Victoria, September 22, 1877.—The paper has been got up in a first-class manner, and for a first number is a marvel of completeness and good work.

La Verdad, Valdivia, Chili, August 5, 1877.—An important publication, exclusively industrial, and from it we shall have much useful information to communicate to our subscribers.

Bendigo Advertiser, Sandhurst, Victoria, September 21, 1877.—It contains a large amount of information, and will assuredly do much to forward the interests of the American export trade.

Grenville Advocate, Smythesdale, Victoria, September 19, 1877.—The manner in which the journal is got up we have seldom seen excelled, and it is well worth the support of all merchants and manufacturers.

The Citizen, Gloucester, Eng.—It aims, by a system of world-wide agency, to find for the multitude of useful and ingenious American inventions that publicity which is only needed to secure for them a brisk and general demand.

Export Mercantile Advertiser, London, August 7, 1877.—The proprietors propose to themselves the advancement of American trade all over the world, and, doubtless, will do it. We cannot but wish success to our new competitor.

British Mercantile Gazette, July 15, 1877.—Mr. Lockwood's resources in the matter of trade journalism are extensive, but whatever he does he does exceedingly well, and his latest venture does him infinite credit, and bids fair to be a great success.

Bacchus Marsh Express, Victoria, September 22, 1877.—It contains descriptions and illustrations of many novelties which the Americans are always producing, but which cannot be got in these colonies, although they would be as useful here as in America.

Rangoon Times (India), September 1, 1877.—We wish the new venture every success, and without wishing to disparage the work of the "old country," feel bound to confess that in many things the Americans surpass us, and notably so in the manufacture of articles for domestic use.

Bermuda Royal Gazette, Hamilton, October 23, 1877.—"The American Mail and Export Journal" of New York, surpasses the English papers in type, in press work, in rich illustrations, and indeed in general information. Copies of "The American Mail" can be seen at our stationery store.

Civil and Military Gazette, Lahore, India, August 31, 1877.—The promoters believe that American manufacturers do not fully realize the opportunities of increasing their export trade, and the object of the publication is to be a means of communication between American manufacturers and the trade throughout the world.

Deccan Herald, Poona, India, August 22, 1877.—It gives us a vast deal of information regarding things of which we know but little. * * * The paper is evidently in the hands of real go-ahead Americans. Our English merchants had better look sharp, otherwise they will find the foreign market contested with them by American merchants. We think we have said enough to show the character of the new journal, and to serve as a warning to English merchants in regard to the competition with which they are threatened.

Graaff-Reinet Advertiser, Transvaal, Africa, September 4, 1877.—What strikes one on perusing this journal is the extraordinary activity of the American mind and the force with which it is directed to compete with the rest of the world in the industrial arts. * * * The Centennial Exhibition has shown the Americans their manufacturing strength; and emboldened by a comparison of the works of their hands with those of other countries, they now feel themselves able to compete in most things with other nations in the markets of the world.

Jewish World, London, July 27, 1877.—Full of interesting matter, and got up in good style.

El Lautero, Rancagua, Chili, August 5, 1877.—We hope that "The Mail" will receive in Chili the greeting that it really merits.

Mortlake Dispatch, Mortlake, Victoria, September 26, 1877.—We have no doubt that it will be found invaluable to all mercantile men.

Paper and Printing Trades' Journal, London.—The first number is crowded with interesting matter, and there is a goodly show of backbone.

Standard and Mail, Cape Town (Africa), September 18, 1877.—This publication is printed in admirable style, and presents a most creditable appearance.

Public Advertiser, Falmouth, Jamaica, August 27, 1877.—Will prove of great use to those who have or seek to have business relations with that country.

Printers' Register, London, July 6, 1877.—Being exclusively devoted to the export trade of the United States, it is likely to be of value to colonial traders.

Nassau Guardian, July 28, 1877.—We acknowledge with thanks the receipt of a copy of "The American Mail and Export Journal. It is very neatly got up.

New Brunswick Reporter, Fredricton, N. B.—Supplies a want that has much been felt by manufacturers and commercial men in the transaction of business.

Star, Coburg, Canada, September 19, 1877.—It will also prove interesting to those who take an interest in the trade of the world generally, as it contains reports from all parts of the globe.

Alice Times, Victoria East, August 31, 1877.—It contains everything of interest to importers and merchants and is very useful. Our readers would do well to give us a call and see the new paper.

St. Helena Guardian, September 6, 1877.—We wish the new venture that success it seems to deserve. Any of our readers desirous of seeing the first number can do so on application at our office.

Gippsland Mercury, Sale, Victoria, September 20, 1877.—"The Mail" is excellently printed on toned paper, and will be a great acquisition to commercial circles, among which it will be extensively circulated.

Oxford (Eng.) Times, July 25, 1877.—The "get up" is in every way admirable; the finely finished and highly glazed paper, the clear type and engravings, and the well-selected and useful subject matter leave nothing to be desired, and it deserves to succeed.

South Pacific Times, Callao, Peru, August 2, 1877.—That there is a wider field abroad for American manufacturers none will deny, and it only remains to decide when, where and how to enter upon it. To promote this is the object and aim of the new journal.

Daily Press, Hong Kong, China, August 28, 1877.—It would appear from some of the papers that the writers do not consider comparisons are odious, and according to their showing American manufactures can "lick creation," more especially British cotton manufactures.

Cradock Register, (Africa), September 7, 1877.—It is beautifully printed, and contains a very large amount of valuable information from all parts of the world, and must be exceedingly interesting to commercial men. South Africa offers a splendid opportunity for the energetic trader.

Darling Downs Gazette, Toowoomba, Queensland, September 19, 1877.—"The American Mail" is an admirable publication, and a complete compendium of current commercial topics in the United States, and contains also capital concise summaries of business affairs in places all over the world.

Kapunda Herald, Kapunda, South Australia, September 25, 1877.—Special correspondents have been secured in various parts of the world to push the purposes of the paper. We hope that one result of this publication will be an increased trade between America and the Australian colonies.

Panama Star and Herald, October 2, 1877.—It will be seen that a wide field of commercial interest is covered by the new journal, while a glance at the articles under the different heads leads us to the conclusion that it is conducted with editorial ability of the first order. We trust the new venture will meet with the patronage and success it deserves.

The Rising Sun and Nagasaki (Japan) Express, September 1, 1877.—It is exceedingly well got up, is comprehensive in its range, and will be invaluable to commercial men and firms; combining as it does much useful knowledge and information regarding new industrial improvements and inventions and a careful epitome of the state of trade—particularly export—of almost every country and colony in the world.

Holloway and St. Pancras (England) Press, October 27, 1877.—We have before us No. 5 of "The American Mail and Export Journal," published by Howard Lockwood, New York. The foreign memoranda are copious, and great praise is due the editor of "The Mail" for his thoroughly impartial spirit in trade items, and general news from correspondents in almost every part of the globe, who evidently write of things as they find them. As a specimen of printing, "The American Mail" is unrivaled. English traders must look to their laurels if they wish to keep their prestige in the colonial market.

The above are merely brief extracts. Many of the journals quoted have given full column notices to "The Mail and Export Journal" and its mission. Sample copies and further information forwarded upon application to

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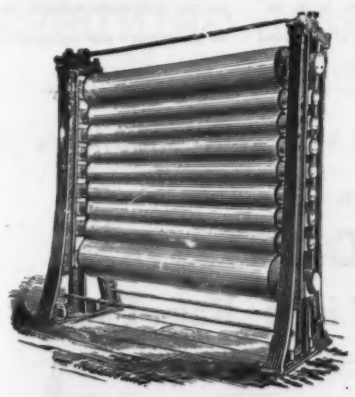

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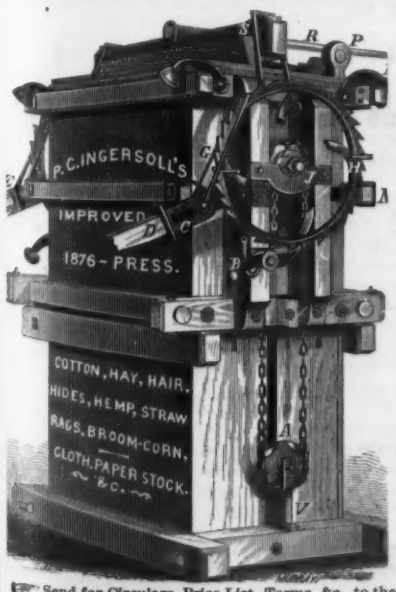
GROUND BY THEIR PATENT PROCESS

PRESSES FOR BALING PAPER RAGS, &c.



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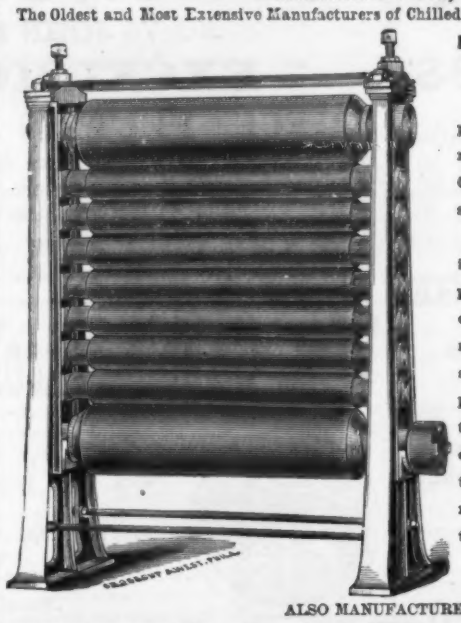

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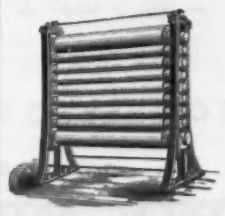

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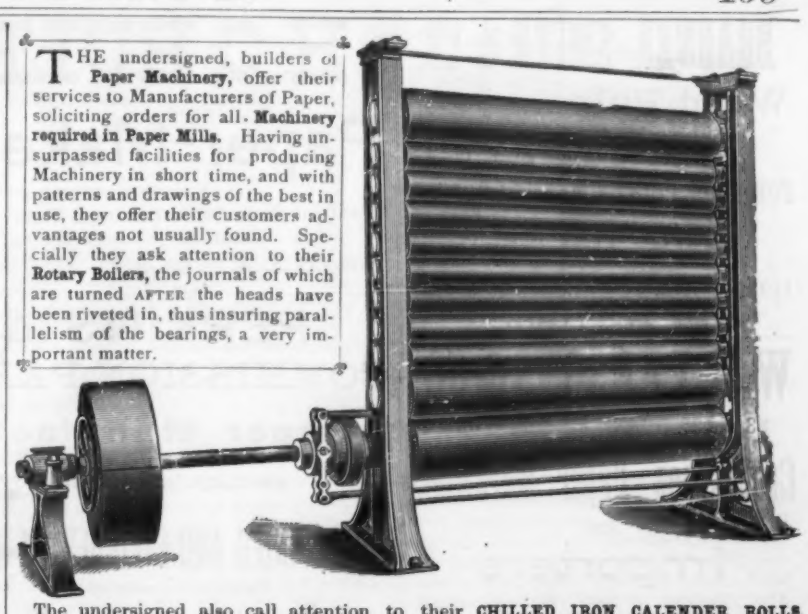

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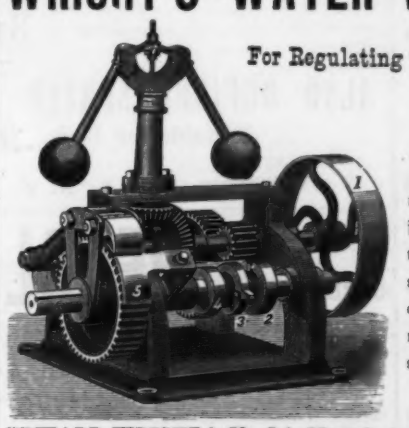

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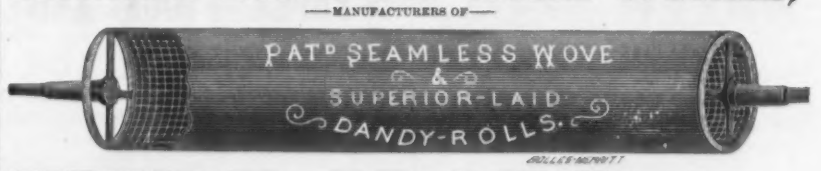

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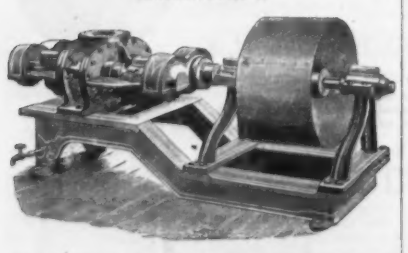

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